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DEVOTED TO

GENERAL NATURAL HISTORY.

CHARLES R. DODGE, Editor.

BULLETIN OF THE POTOMAC-SIDE NATURALISTS' CLUB.

VOLUME I.

WASHINGTON:
THE COLUMBIA PRESS.
1876.

CONTENTS.

Abbott, Dr. C. C., Article by, 3
Alpine Insect Flora of the Rocky Mountains, 80
Anodonta dejecta, 26
Ants, Strength and Perseverance of, 25
Apocope couesi, 39
Asters, 65

Bank Swallow, note on, 88
Big Tree, 44
Birds of the District of Columbia, 79
Botany in the District of Columbia, 29
Botanical Notes, 5

Cambridge Entomological Club, 64
Carpenter, Lt. W. L., Article by, 80
Case of Snake Poisoning, 12
Case of Snake Swallowing, 30
Chickering, Prof. J. W., Articles by, 8, 37, 48, 65
Cocoons and Cocoon Builders, 76
Comparative Scarcity of Insects in the Mountains of Colorado, 89
Colorado Potato Beetle, notes on, 16
Coues, Dr. E., Salutatory, 1
Cucumber, New Enemy to, 9
Curious Growth in a Potato, 16

Descriptions of new Species, 4, 26, 39
District of Columbia, Botany of, 29
Distribution of Certain Species of Aster, 65
Dodge, Chas. R., *Editor*, Articles by, 9, 25, 27, 73, 89
Dodge. J. R.. Article by, 44
Doolittle, M. H., Article by, 67
Dung Beetles, 55, 71

Earthquake Shock, 48
Early Flowering Plants, 88
Editorial Pencilings, 32, 96
Edible Fungi, 71
Entomological Gleanings in Southern Fields, 73
Eremobia magna, 4
Erythronium album, 8
Exotic Trees in Washington, 17

Field Record, 8, 16, 30, 48, 55, 71
First appearance of insects, 8
Flora Columbiana, 83, 96
Florida Litany, 32
Foreman, Dr. E., Articles by, 19, 29
Fountain Pump, 31

Gleanings in Foreign Fields, 95
Gold Fish Breeding, 46
Goniloba olynthus, 73
Grasshoppers in Minnesota, 31
Grasshopper plague, 31

Habits of the Yellow Perch, 3
Holly and Mistletoe, 91
House-fly, note on, 47

Influence of Illuminating Gas on Vegetation, 14
Inquiry concerning early botanists of the District, 8

Jouy, Louis, List by, 79

Latimer Collection at the Smithsonian Institution, 19
Lewis, Jas., Description by, 26

Mantis Carolina, 74,
McMurtrie, Wm., Article by, 14
Mildness of the season, note on, 71
Mistletoe, The American, 66
Missing Links among the Lepidoptera, 63

Nesting of the Worm-eating Warbler, 10
New Enemy to the Cucumber, 9
Notes on the Habits of the Yellow Perch, 3
Notice of the Cambridge Entomological Club, 64

Oaks of the Potomac-side, 39
Our Native Trees, 49

Palms and Yuccas of the United States, 67
Phylloxera, remedy for, 55
Potomac-side Naturalists' Club—Record, 6 15, 42, 53, 69, 88, 94

Rare and Note-worthy Trees in Washington, 33
Reason in Animals, 27
Recent Collections in Ethnology, 32
Remarks on the Flora of the Potomac, 21
RIDGWAY, ROBERT, Articles by, 10, 49

Salutatory, 1
SANBORN, F. G., Articles by, 55, 76
SCHAEFFER, DR. E. M., Article by, 12
SEAMAN, Prof. W. H., Articles by, 21, 48, 57, 71
Sentiment among Insects, 55
Snake Swallowing, Case of, 30
Snake Poisoning, Case of, 12
STABLER, J. P., Note by, 31
STAUFFER, J., Notes by, 71
Strength and Perseverance of Ants, 25

Trap-door Spiders, 75
THOMAS, C., Description by, 4

VASEY, DR. GEO., Articles by, 5, 17, 33, and 67
Vitality of Seeds, 57

WARD, L. F., Article by, 39
White Mountain Notes, 37
White Mountain Birds and Insects, notice of, 48
Winter-blooming Jessamine, 56

YARROW, DR. H. C., Description by, 39
Yellow Perch, Notes on the Habits of, 3

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A. Hagen

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CONTENTS.

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SALULATORY . . . . *Elliott Coues.* 1
NOTES ON THE HABITS OF THE YELLOW PERCH . . . . *Dr. C. C. Abbott.* 3
DESCRIPTION OF A NEW GRASSHOPPER . . . . *Prof. Cyrus Thomas* 4
BOTANICAL NOTES . . . . *Dr. Geo. Vasey.* 5
POTOMAC-SIDE NATURALISTS' CLUB—Record . . *Prof. J. W. Chickering, Jr.* 6
FIELD RECORD 8
Note on Erythronium albidum.—First appearance of destructive insects.—The Grasshopper Plague.—Inquiry concerning early botanists of D. C.

PUBLISHER'S DEPARTMENT.

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It is not intended, however, that it shall be exclusively the bulletin of any society, or the record of any particular locality, but that it shall be devoted to the *fields* and *forests* of our whole country. At the same time we shall aim to make it popular by

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VOL. I.—JUNE, 1875.—NO. I.

SALUTATORY.

The initial number of FIELD AND FOREST is hopefully presented in the expectation of aiding the study of the natural sciences, not alone as a record of the Potomac-side Naturalists' Club, but as a representative of similar effort throughout the country. It is an enterprise undertaken by an individual with the cordial endorsement of a local organization, a brief history of which is given by one of its prominent members in the greeting which we append.

C. R. D.

To the Club and its Friends, greeting!

It is now nearly twenty years since this Club was established to promote informal social intercourse between 'Potomac-side' naturalists, and encourage the study of the Fauna and Flora of the vicinity. The design of the founders of this local society has been fully carried out; and the success which has marked its career shows their wisdom in adopting the simplest plan of operations. Without machinery to get out of order—without even an officer excepting the secretary—the club has pursued its even way, uneventful indeed and certainly unobtrusive, but never without interest for those in sympathy with its objects.

Among its members are enrolled not a few whose names are household words in scientific circles; and to their concerted action during these years is largely due the knowledge acquired of the natural history of the District. The record of the Club, faithfully kept from the beginning, is a signal example of what may be done by a few earnest men, working quietly, harmoniously and persistently, hampered by no restrictions, and as free from pecuniary embarrassments as from the responsibility of pecuniary resources.

With temporary interruption during the late political troubles, the Club has met regularly during a portion of each year since 1856, to devote an evening to the reading of papers, the exhibition of specimens, and the interchange of opinion. Uutil recently, the meetings were held at the residences of the members in turn, and the host of one evening became the chairman of the next. Though this plan had its advantages, it was attended with some inconvenience, and the want of a fixed place of meeting became more evident upon the recent large accession of new members.

Through the exertions of the present Secretary, and the liberal action of the Trustees of the Franklin School, the Club has at length a 'local habitation' free of expense; the nucleus of a collection to illustrate the natural history of the District has been established; and now an energetic fellow-member proposes that the Club shall no longer hide its light under a bushel. It cannot be denied, that hitherto the benefit of this association of naturalists has not extended beyond its own circle; but the necessity of such restriction no longer exists. Mr. Dodge is prepared to take upon himself the responsibilities of publication, purely as a labor of love, without expectation or desire of reward other than co-operation and support. As this undertaking, if successful, cannot but increase the usefulness of the Club, we cordially commend it to the goodwill of all interested in its objects. We are encouraged to hope for all that the editor may desire, by the recollection that in scientific literature some of the most sturdy oaks have sprung from acorns like this one. The Club has long represented the *field and forest* of this vicinity, and it is fitting that it should come to be itself representby "Field and Forest."

ELLIOTT COUES.

The "buffalo gnat," an insect often fatal in its attacks on domestic animals, has been unusually destructive this spring to horses and mules in the Southwest, Tennessee especially. In one county the loss is estimated at $500,000.

Notes on the Habits of the Yellow Perch.

BY DR. C. C. ABBOTT, TRENTON, N. J.

So far as I have been able to follow it, this fish, *Perca flavescens*, remains in the stream in which it was hatched, throughout the year, and indeed, for many years; the exception being, that small perch will seek larger streams as they reach adult size, if it happens that a gravid perch has entered a smaller from a larger stream, to deposit its spawn. They can scarcely be said to be more abundant at one season than another, although in winter they are more difficult to catch.

I have no means of determining the maximum size of the yellow-perch. A specimen caught in the Delaware River at Bordentown, New Jersey, in May, 1865, weighed 4 pounds, 3½ ounces, and I have frequently met with them weighing 1½ to 2 pounds. An average sized adult yellow perch, as found in the Delaware River, may be said to be 9 inches in length, and to weigh six to eight ounces. The young perch at six months old, (by November 15th of their first year,) are about 2¼ inches long. Of their subsequent growth I have not been able to determine anything positively, but believe it to be rapid. It probably varies with the abundance or comparative absence of "live" food, as in some ponds where cyprinoids are not abundant the perch seems never to attain a large size.

Early in May the sexes go in pairs to cool waters, having some current, and a sandy or pebbly bed, with a moderate amount of vegetation, (*Myriafolium obtusum* preferred), and the ova are deposited on the bed of the stream, quite near the shore. The milt is deposited immediately after, the two fishes being side by side while the process is going on. The temperature of the water is about 55° Far.

The eggs when extruded sink to the bottom of the "nest" in masses, and there remain, adhering to the pebbles or sand until hatched, and the ordinary flow of the water does not seem to disturb them; although they have no protection from the current other than being in a shallow basin made by the female fish with her abdominal fins. Both sexes immediately quit the nest, and the eggs are not again disturbed by them, and certainly are not subsequently visited. The eggs, numbering about 8000, are hatched at the end of four or five days, at most, or at least a good proportion are, for at the end of a week or ten days I have found minute yellow perch, associated with little sunfish, tangled in among the water-plants, active as their strength permitted and darting voraciously at almost invisible specks that seemed to serve them for food. In the immediate neighborhood of the nest I have seen many hundreds of such little perch.

I believe, for the adult fish, deep water, of the temperature of ordinary spring water, having some current, and the bed of the stream at least partly covered with vegetation, is about such a locality as best suits this fish.

Description of a New Grasshopper from Arizona.

Eremobia magna, *sp. nov. Female.* Vertex deflexed, broad quadrate, slightly enlarged in front of the eyes, margin slightly elevated, central portion nearly flat, with a distinct median carina; temporæ vertical, sub-obliterated, in which the lateral ocelli are situated. Frontal costa expanded and prominent between the eyes, slightly sulcate with two indistinct diverging lines of minute tubercles above the ocellus; constricted and sub-obliterated below the ocellus. The face and cheeks rugose. Pronotum broad and rapidly expanding posteriorly to the middle legs; flat and rugose above, sides perpendicularly deflexed forming distinct humeral angles, transverse incisions distinct, the posterior in front of the middle; median carina somewhat distinct on the posterior lobe, obliterated on the anterior lobes; lateral carina distinct, not elevated; disk of the posterior lobe elongate-tuberculate; anterior margin truncate, the posterior extremity elongate, extending upon the second abdominal segment, giving the posterior lobe an elongate-ovate form; posterior lateral margins quite oblique and slightly but regularly incurved. Abdomen very large, tapering rapidly posteriorly, not carined above. Elytra squamose, extending only to the middle of the second abdominal segment; minutely reticulated; longitudinal veins inconspicuous; wings minute. Posterior femora shorter than the abdomen, robust and convex on the disk; pinnæ not distinctly angulated but simply curved, and somewhat bifurcated above giving the disk somewhat the appearance of being covered by imbricated scales; upper and lower carinæ hairy. Posterior tibiæ curved forward in the lower half; expanding below, with strong, somewhat distinct and slightly incurved spines nearly to the knee; hairy, especially between the rows of spines. Anterior and middle legs pilose, meso- and meta-sternum very broad and flat; the posterior margin of the latter squarely truncate with no entering lobe or sinus. Prosternum about half the width of the metasternum; a somewhat prominent curved ridge extending across from one leg to the other. Antennæ of medium length, filiform.

Color, (alcoholic).—Dull ochreous or yellowish-brown; a few black points on the anterior portion of the pronotum; elytra brown with paler reticulations; interior face of the posterior femora dark-brown or black; tips of the valves of the ovipositor and of the tibial spines black; sternum and venter yellow.

Dimensions.—♀ Length; 1.90 inches; pronotum, .75 inches; width of pronotum at the broadest part, .50 inches; elytra, .25 inches; posterior femora, .70 inches; posterior tibiæ, .65 inches; width of mesosternum, .56 inches.

Lower Arizona. From the collection of Lt. Wheeler's Expedition of 1874. Collected by Mr. Henshaw.

Stal has restored the generic name *Eremobia* of Serv. in place of *Thrincus* of Fischer, and I think properly. I have therefore followed him. The specific name *magna* is given because it is supposed to be the largest species of the genus known.

CYRUS THOMAS.

Botanical Notes.

ANDROSTEPHIUM VIOLACEUM, Torr.—A number of bulbs sent recently from Fort Harker, Kansas, as bulbs of *Scilla Fraseri*, were potted in the greenhouse, and having flowered, prove to be *Androstephium violaceum*, which has not before been recorded as far north as Kansas. It has been known chiefly from Texas specimens. It is a liliaceous plant having somewhat the habit of *Allium*, but much smaller. The flowers are constructed somewhat like those of *Narcissus*. A second species, (*A. breviflorum*, S. W.), from Utah, was last year described by Mr. Watson.

DENTARIA HETEROPHYLLA, Nutt.—This species occurs in this vicinity in great abundance, and although growing side by side with *D. la-*

ciniata, it seems to hold itself distinct. The raceme is longer and laxer and the petals longer than *laciniata.* The cauline leaves are alternate, usually the upper two in near proximity, and the third at a distance lower. The leaf segments are less cut than in *laciniata.* The radical leaves are so delicately attached to the root-stock that it is difficult to secure specimens in perfect condition.

CORYDALIS FLAVULA, Raf.—This species is found here in great abundance in company with *Dentaria.* It is taller than *C. aurea,* which has not yet been observed here, but it is not so rich in the color of the flowers.

VIOLA PEDATA, L., var. *bicolor,* Gr.—This variety is more showy than any other of our native violets, and being perfectly hardy is worthy of more cultural attention than it receives. It is inferior to the pansy only in the size of its flowers, and probably these might be enlarged and improved by cultivation.

POA BREVIFOLIA, Muhl.—This species vies with *Poa annua* in early flowering. It is one of the most graceful of our *Poas* and when growing under favorable circumstances, becomes 1½ to 2 ft. high. It presents several variations from the type, as in the number of the branches, which in some of the specimens are 3–5, in having both glumes acute, and the lower palet prominently nerved. The sheaths are sometimes quite scabrous.

Potomac-side Naturalists' Club.

April 12*th,* 1875, (186*th meeting.*)

Prof. Chickering read a paper upon the Alpine Flora of New England, illustrated by specimens. In his enumeration were embraced mainly those plants growing above an altitude of 2500 feet, though quite a number of plants found around the base of the mountains might be included in the flora of the region. It is also confined to the granite regions of the White Mountains, and Mt. Katahdin, omitting several species occurring in the limestone formations of Vermont.

Among them may be mentioned *Cardamine bellidifolia, Viola palustris, Paronychia argyrocoma, Arenaria Grœnlandica, Potentilla frigida, Rubus Chamæmorus, Saxifraga oppositifolia, S. rivularis, S. stellaris,* var. *comosa*, *Solidago Virga-aurea*, *Nabalus nanus* and *Bootii*, *Vaccinium uliginosum*, *V. Vitis-Idœa*, *Cassiope hypnoides*, *Phyllodoce taxifolia*, *Rhododendron Lapponicum*, and other *Ericaceœ*, *Castilleia pallida*, *Empetrum nigrum*, and *Corema Conradii*, approaching the sea-level on the coast of Maine, several *Salices*, *Junci*, *Carices* and grasses.

As we go farther north, many of these species approach the level of the sea, and most of them have been found in the proper arctic flora, accompanied by many species which are not found on these mountain-tops.

April 26*th*, (187*th meeting.*)

Prof. Seaman illustrated, by means of slides and the lantern, different phases of fungoid life. The fructification of *Erysiphe*, the mildew on grape-leaves; *Sphœria morbosa*, the black-knot of plums; *Mucor mucedo*, common mould; and some of the *Oidium* family on raspberry and rose leaves, were very beautifully exhibited. Also the *Saprolegnia* or fish-fungus, and the archegonia and antherozoa of *Fucus vesiculosus*.

May 10*th*, (188*th meeting.*)

Dr. Vasey presented the Herbarium some sixty species of grasses found in the vicinity. It was also stated by other members of the club that a large number of specimens illustrating the Flora and Fauna of the District, were ready for presentation, whenever suitable cases shall be in readiness.

Prof. Chickering called attention to a new locality of *Erythronium albidum*. Dr. Shaeffer spoke of the coincidence of the first warm days of this season with those of last year, May 9th and 10th being the dates in both cases.

Dr. Gale alluded to the influence of the different poisons on swine. Dr. Curtis spoke of the experiments of a friend, who administered large doses of poison to swine on his premises, but without effect. A discussion then arose on the effect of temperature on mental and physical development.

Dr. Foreman spoke of the phenomena of cloud formation and dispersion around mountain tops, where all day long, the vapor is undergoing condensation, and yet without any apparent increase in volume. He also mentioned having seen the same phenomenon over the waters of Chesapeake Bay.

Field Record.

Erythronium albidum, Nutt., has been discovered in great abundance on the upper end of High Island. It differs from *E. americanum* not only in its beautiful white perianth, but in its more slender, graceful habit, its three-cleft stigmata, and its leaves which are paler, quite differently blotched, and sometimes almost glaucous, and destitute of the glossy surface of the other species, looking as if it had been varnished, so that in beds of either species, it is quite easy to pick out individuals of the other by the leaves alone.—J. W. Chickering, Jr.

First specimens of the cabbage butterfly, *Pieris rapæ*, were observed April 27th which is much later than last year. A specimen of the Colorado potato beetle, *Doryphora* 10-*lineata*, was taken upon the wing May 12th, in the city, and a week later they were reported in numbers in the neighboring counties of Maryland and Virginia. They should not be allowed to spread. Large numbers of the museum-pest, *Anthrenus varius*, were found in the beetle state upon the flowers of *Spirea* about the the same date in one of the public gardens.—C. R. D.

It appears from letters received from Kansas, that the late, cold winter has had no effect in killing out the grasshopper plague, as it has been thought by many that the vitality of the eggs was destroyed and they would not hatch out in the spring. In a recent letter from Leavenworth, the writer states that the grasshoppers are hatching out by the "thousands of millions," and in some places the ground is black with them.—G.

The Botanical section of the Club is desirous of collecting all accessible information relating to the early investigators of the botany of the District of Columbia, including the members of the old Washington Botanical Society, and the compilers of the Flora Columbiana. The details wanted refer to the localities they visited, the species of rare plants they claim to have found, the books they consulted and their general biography.

giving fresh and interesting notes relative to fish culture and fishing, game and game-laws, economic entomology and botany and other subjects. To that end we invite brief contributions from all students of nature upon such topics, as well as upon those subjects more technical.

Though starting out modestly with but eight pages, we hope it will receive sufficiently substantial encouragement, by way of subscriptions, to enable us soon to add to the number of its pages, and thus enlarge its size and scope of usefulness.

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CONTENTS.

JULY, 1875.

A NEW ENEMY TO THE CUCUMBER . . . . *Editor* 9
NESTING OF THE WORM-EATING WARBLER . . . . *Robert Ridgway.* 10
INTERESTING CASE OF SNAKE POISONING . . . . *Dr. E. M. Schaeffer.* 12
INFLUENCE OF ILLUMINATING GAS UPON VEGETATION . . . *Wm. McMurtrie.* 14
POTOMAC-SIDE NATURALISTS' CLUB—Record . . *Prof. J. W. Chickering, Jr.* 15
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Curious growth in a Potato——NOTE on the Colorado Potato Beetle.

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(Continued on 3d page of Cover.)

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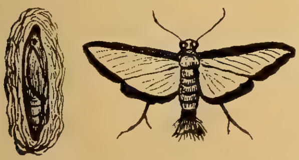
Vol. 1.—JULY, 1875.—No. 2.

A New Enemy to the Cucumber.

Among the insects injurious to the cucumber there is a species of *Phakellura*, figured and described in Mr. Riley's second report, which lives, in the larval state, in the fruit itself. The damage is done by their boring cylindrical holes into the fruit, and feeding upon its fleshy part, as many as four having been found in a medium sized cucumber. They attain their full size in three or four weeks, and transform in a silken web near the ground, and the moths are said to appear in eight or ten days.



A correspondent at Indian River, Florida, engaged largely in growing cucumbers, sent me a number of chrysalids of a small worm, a few weeks ago, which had attacked his plants, first the bud, then, working into the plant, and eventually killing them out root and branch, in fact, he reports his crop a complete failure from the presence of these insects.

When the insects were received they had all spun up, or changed to the pupa state, so we had not an opportunity of seeing the worm. The pupa is .54 inch long, in color, reddish brown; the head portion quite pointed, and the legs extending, in their envelope, nearly to the end of the abdomen, quite free beyond the tips of the wings just visible under the skin. The moths, or perfect insects, appeared in a few days, and on examination proved to be *Phakellura hyalinitalis*, of Guen., a much smaller species than that mentioned by Mr. Riley.

The moth expands a little over an inch ; the general colors are white and brown, (see accompanying cut,) the whole surface of the wings having a metallic lustre, which in the centre portion has a bluish or purplish appearance. The body is silvery white, and the end of the abdomen is adorned by two tufts of yellowish hairs ; legs and entire under-body white. Mr. Glover has, years ago, taken the insect in Florida, but did not know of its ever having been troublesome, so we must regard it as a new enemy to the cucumber, and, from the report of our correspondent, a dangerous one.

EDITOR.

Nesting of the Worm-eating Warbler.

HELMITHERUS VERMIVORUS.—The Worm-eating Warbler is a species whose habits during the breeding season are very imperfectly known, while all the accurate history pertaining to it is the result of quite recent observations. Wilson describes its manners very erroneously, for he says that it is "among the nimblest of its family ;" on the contrary, it is noted for unusual deliberation in its movements, a trait rendering it conspicuously different from the restless and agile members of the family to which it belongs. Audubon described what he thought was the nest of this bird, but he undoubtedly had that of some other before him, since he said it was placed in bushes. It was not until December, 1869, that ornithologists were acquainted with the true character of its nest and eggs, and other items pertaining thereto, through an article in the *American Naturalist*, by Mr. T. H. Jackson, of Winchester, Pennsylvania. That gentleman thus describes a nest and eggs, which he found at that locality: "On the 6th of June, 1869, I found a nest of this species containing five eggs. It was placed in a hollow on the ground, much like the nest of the Oven-bird, (*Seiurus aurocapillus*), and was hidden from sight by the dry leaves that lay thickly around. The nest was composed externally of dead leaves, mostly those of the beech, while the interior was prettily lined with the fine thread-like stalks of the hair-moss (*Polytrichium*). Altogether, it was a very neat structure, and looked to me as though the owner was habitually a ground nester."

Mr. Jackson adds that this nest was on a thickly wooded hill-side, above a running stream, and that is was so neatly imbedded in the ground that its discovery would have been impossible had its position not been betrayed by the female. In the latter part of June, Mr. Jackson found another nest, which was in all respects like the preceding; and more recently, Mr. J. H. Batty found one at Montclair, New Jersey, the position and composition of which were the same. The above constitutes about all the reliable account which have hitherto been published regarding the nest and eggs of this bird.

All our readers—at least those familiar with the vicinity of Washington—know the thickly-wooded, steep hill-sides facing the Potomac river on the Virginia shore, just above the Aqueduct Bridge. The deliciously cool nooks along this shore, with their rippling brooks and luxuriant ferns, shaded all the day from the hot summer's sun, are a favorite resort with those who manage to escape for a day from the city, and it was here that we were recently (June 12) enjoying a day of recreation, and had the rare luck to discover a nest of the Worm-eating Warbler. Several nests of the Cat Bird and Wood Thrush had been found, and we were keeping a sharp look-out for one of the Golden-crowned Thrush, or Black-and-white Creeper, both of which were noticed feeding full-fledged young. We had not thought of the Worm-eating Warbler, and consequently were considerably surprised to see one near by, with a worm in its bill, exhibiting great uneasiness at our presence, by her restless movements, and loud chirping, as she flitted from bush to bush. Her complaining notes soon brought to her presence a Golden-crowned Thrush, (*Seiurus aurocapillus*), who hopped about, uttering very similar notes, and appearing so nearly like the other in every movement, that it was only by its spotted breast that it could readily be distinguished; and while we were watching these, a pair of Red-eyed Vireos came to the scene, and, less suspicious of our presence, went directly to their pendulous nest, in an oak sapling almost over head. It became apparent after a while, that we would have to remove some distance before the bird would venture to her nest, for which we had searched "high and low"; so we accordingly ascended the hill-side for two or three rods from the spot where we knew the nest must be, and waited patiently. After ten or fifteen minutes she grew more quiet, and flew into a large pit on the hill-side; but being not yet confident, she flew out again, after visiting nearly every side of the excavation but the right one, and resumed her complaints.

We remained perfectly motionless for at least ten minutes longer, when, after becoming gradually quiet, she flew straight to the opposite bank and disappeared behind a tuft of stiff, glossy ferns; she then fed her young, and disappeared. The nest was found at last, and no time was lost in examining it; the fern-leaves were pulled away, and there in a recess in the bank, completely sheltered overhead and on the sides, was an elaborate nest, deeply imbedded in the ground, and containing five nearly fledged young ones. The nest was much more substantial and elaborate than most ground nests are, and was large for the bird; its base consisted of a broad mat of dead leaves, inside of which was a firm-rimmed saucer-shaped structure of fine roots and mosses. Owing to its completely concealed location, it would have been impossible to have found it had not the owner herself betrayed its position.

This was the only one of the species found in the locality that day, though other birds, as the Cat Bird, Wood Thrush, Redstart, Golden-crowned Thrush, and Black-and-white Creeper were abundant. From our observation, we conclude that, according to Mr. Jackson's opinion, the species is strictly a ground nester, like the members of the allied genus *Helminthophaga*, and that it also selects the most completely shaded, thickly wooded, and damp localities.

Robert Ridgway.

Smithsonian Institution, June 14, 1875.

Interesting Case of Snake Poisoning.

At a recent meeting of the Club, I gave a brief history of a case of poisoning by the *Agkistrodon Contortrix*, (B. and G.,) or Copperhead, occurring under my observation in the District, and I have thought that some further remarks on the subject, together with my previous experiences with the reptile, might be of interest.

A young man, about 21 years of age, was spending an afternoon on the Potomac river on the 22d of last month, in company with a few others. The party had landed from their boat at a point on the Virginia shore frequently selected for pic-nics, and known as "Potomac

Landing.'' The shore here is steep and rocky; and wooded up to the top. While jumping down some rocks, the young man lost his balance, catching himself on his hands, and immediately was bitten on the right hand by a snake that was concealed in the dry leaves. He at once attacked the snake, which he described as marked with oval blotches, and some three feet long, stamping twice on it before it escaped.

The wound *at once* gave him some pain, like the sting of a wasp, as he described it, and in a few minutes he began to vomit. This continued until his stomach was emptied, when he still experienced violent retching. He then became deadly faint, and lay down; his companions, who had not seen the snake, laughed at his statement, saying it was a bee, and took no measures to prevent absorption of the venom by sucking or bandaging; four hours later he had been brought to Georgetown, and was first seen by a physician, Drs. L. Mackall and C. H. A. Kleinschmidt having been summoned.

Dr. K. described his appearance at this time to me, as that of a person in the last stages of collapse; skin cold, pulse nearly gone, respiration feeble, and pupils widely dilated, with great dimness of vision. The right hand and arm was fearfully swollen, of a grayish-black color, resembling gangrene. Stimulants were at once rejected by the stomach, but a hypodermic injection of whiskey served to arouse him. He was conveyed to his home, and the wound, (which was on the ulnar border of the hand, midway between the palmar and dorsal surfaces,) enlarged and covered with a hot poultice, cooling applications applied to the arm, and everything done that could be suggested by all previous experience in similar cases. He passed a feverish night, but was much better Sunday. On Monday evening, I called at the house, and found him nearly free from pain, though the arm was still swollen to nearly the size of a man's thigh. From this time he progressed rapidly toward recovery, and in less than a week was out, with his arm in a sling.

In visiting the same spot, the Saturday following the accident, a young gentleman in my party found a Copperhead 34 inches long, recently dead, and showing no external marks of injury, and from the description given by the young man bitten, it may be concluded beyond a doubt, that it was a snake of this species which bit him. His recovery was due mainly to his good constitution, as the venom was clearly of the most active character, and no immediate steps taken to interfere with its free absorption.

The Copperhead is the only poisonous serpent now found in the District, and confined chiefly to the rocky shores of the Potomac and Rock Creek, in the uncultivated and comparatively unfrequented spots. They formerly abounded here, as the recollections of the older citizens bear testimony. Of late years I have, however, heard of only two or three well authenticated instances of their occurrence, besides one within my own experience.

On the 9th of May, 1870, I caught three Copperheads at "Windy Branch," a point on the Virginia shore, some three-fourths of a mile below the place where the above-mentioned snake was found. They were some 100 feet above the water, near an old quarry, and comprised a large male and female, and a young one about 10 inches long. The female I secured unhurt, by catching it with my hands as it was trying to escape—not being aware at first of its poisonous character. I carried it home, and kept it a month to experiment with; among other things, making it bite a kitten about four months old, which recovered without antidotes, after having a paw enormously swollen. Before placing it in the Army Medical Museum for osseous preparation, I examined the venom microscopically, with no results other than those so well given by Prof. W. Mitchell, of Philadelphia, and found it had an insipid, sourish taste, and acid reaction.

The treatment of the bite may be condensed as follows; bandage the part above the wound, if a limb; apply caustics, or actual cautery if at hand; encourage bleeding by enlarging the wound, and give at once large doses of whiskey, brandy, &c., until intoxication appears.

E. M. Schaeffer, M. D.

Influence of Illuminating Gas upon Vegetation.

This subject has been quite extensively studied in Germany by Boehm, Spath, Meyer, and others, but their investigations related principally to the influence of long contact of the gas with the roots of plants. In the investigation about to be described, however, more particular attention was given to the influence of the gas upon the aereal portions. In one case of the German experiments, cuttings of willow were placed in a jar containing a small quantity of water and otherwise filled with illuminating gas. The buds opened, but before the leaves could fully develop, they withered and died. Here we have an atmosphere saturated with the gas and the question next arises, what would be the influence of a comparatively small proportion of gas in the atmosphere. The experiments in question were made to determine this. Two good healthy plants (*Camelias*) were selected and placed in closed wooden boxes provided with glass sides. The dimensions of the boxes were two feet square in horizontal cross-section, and four feet high. The plants were therefore placed under the same conditions with regard to light, heat, and moisture. Into one of these boxes, illuminating gas was conducted by means of a rubber tube connecting with a gasometer, the latter being filled with gas from the supply to the laboratory. The quantities introduced, were as follows: February 24th, about 7.5 per cent.; February 25th, about 3.5 per cent.; February 27th, about 3.5 per cent.; March 1, about 3.5 per cent. The figures represent percentage of the entire volume of the box.

At the end of the experiment, the plant thus treated was carefully removed from the box and dropped upon the ground with a tolerably spaap shock, when all of the flowers, and nearly all of the leaves fell off. The plant in the other box when taken out remained perfectly healthy. Taking into account the probable diffusion of the gas, and the fact that when the top of the box was removed, no odor of gas was perceptible, we concluded that if plants be kept in an atmosphere containing continually one or two per cent. of illuminating gas, they will suffer injury and perhaps complete destruction.

WM. McMURTRIE.

Potomac-side Naturalists' Club.

June 7, 1875, (190*th meeting.*)

Dr. E. M. Schaeffer gave an account of a recent case of poisoning from the bite of a Copperhead snake, (*Agkistrodon contortrix,*) an abstract of which is given on another page.

He stated that there are but three snakes found in this vicinity whose bite is poisonous, the Copperhead or moccasin, the Rattlesnake, (*Crotalus*,) and the Water moccasin, (*Toxicophis piscivorus.*)

He also stated that is was very easy to distinguish the venomous snakes of this vicinity, from those which are harmless, by the great constriction of the neck, and dilation of the head, which becomes triangular, almost cordate, and by the short and blunt tail.

The various adders found about here, and commonly feared, are perfectly harmless.

June 21*st*, (191*st meeting.*)

Mr. Jouey presented nest and eggs of the Carolina dove, (*Zenaidura Carolinensis.*) Dr. Schaeffer exhibited, under the microscope, various inhabitants of the Potomac water, Cyclops being very abundant and active. Other species generally found in stagnant water were present. But more dangerous to health than any of these found, were various confervoid growths, with their possibilities of disease-bearing spores. Altogether, the exhibition was not assuring to patrons of the aqueduct.

Mr. Shufeldt then gave a very instructive and interesting paper upon "The Collection and Preservation of Vertebrates." After some preliminary remarks upon the distinction between the true naturalist and the mere collector, with instructions as to outfit, and great emphasis upon the necessity of full field-notes upon each specimen, he proceeded to demonstrate upon the body of a vertebrate, well known in market as *Gallus vernus*, the process of preparing a skin for cabinet use. The Club then adjourned to *October* 4th, 1875.

Field Record.

A potato about two inches in diameter was brought to the Department of Agriculture, in the centre of which was a small scaly tuber similar to those found on the roots of some *Cyperaceæ.* No evidences of connection between the inner tuber and the outside of the potato were visible, they appearing to have been entirely obliterated.

Mr R. L. Howell of Milleville, New Jersey, informs us that chickens in his neighborhood have learned to eat the Colorado potato beetle, and hunt for them with avidity. Another correspondent makes a similar statement, explaining that corn was first strewn between the rows.

(Continued from 2d page of Cover.)

giving fresh and interesting notes relative to fish culture and fishing, game and game-laws, economic entomology and botany and other subjects. To that end we invite brief contributions from all students of nature upon such topics, as well as upon those subjects more technical.

Though starting out modestly with but eight pages, we hope it will receive sufficiently substantial encouragement, by way of subscriptions, to enable us soon to add to the number of its pages, and thus enlarge its size and scope of usefulness.

New subscribers that have not a copy of the first number, will please notify us, as as we presume they have retained their specimen copy.

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AUGUST & SEPTEMBER, 1875.

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

BULLETIN OF THE POTOMAC-SIDE NATURALISTS' CLUB.

CHARLES R. DODGE, EDITOR.

WASHINGTON:
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1875.

CONTENTS.

AUGUST & SEPTEMBER, 1875.

Exotic Trees in Washington . . . . *Dr. George Vasey.* 17
The Latimer Collection at the Smithsonian Institution . *E. Foreman.* 19
Remarks on the Flora of the Potomac . . . . *Wm. H. Seaman.* 21
Strength and Perseverance of Ants . . . . *C. R. D.* 25
Description of a New Species of Anodonta . . . . *James Lewis.* 26
Reason in Animals . . . . *Editor.* 27
Botany in the District of Columbia . . . . *E. Foreman.* 29
Field Record 30
A Case of Snake Swallowing.—Grasshoppers in Minnesota.—Fountain Pump.
Editorial Pencilings 32
Recent Collections in Ethnology.—Florida Litany.—Notes.

PUBLISHER'S DEPARTMENT.

Field and Forest is a monthly publication devoted to General Natural History, and the sciences, and is the Bulletin of the Potomac-side Naturalists' Club of the District of Columbia.

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A limited number of advertisements will be inserted, for the present, at the following rates: Per line, first insertion, 20 cents; each subsequent insertion, 15 cents. Advertisements occupying a quarter, or half page, at reduced rates.

Contributions of notes are solicited on subjects pertaining to Natural History, and kindred topics, from all who are interested in the study of nature.

Address all communications Editor Field and Forest,

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PROSPECTUS.

For some time past there has been a desire for a medium through which students of Natural History and the kindred sciences at the Nation's Capital could communicate with each other the results of current observation in the field and laboratory, and, at the same time, place on record notes of any new facts of general interest to the scientific world that might come under their notice.

To meet this want, Field and Forest has been projected, and, under the patronage of the Potomac-side Naturalists' Club—a natural history society founded several years ago—it starts out with a corps of Contributors composed mainly of gentlemen of recognized authority in the various branches of science, many of whom are eminent in their specialties.

A monthly record of the proceedings of the Naturalists' Club will be given, and abstracts of papers read before the club will be published when upon subjects of special interest.

(Continued on 3d page of Cover.)

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

VOL. I.—AUGUST & SEPTEMBER, 1875.—NOS. 3 & 4.

Exotic Trees in Washington.

Although we believe, as a general rule, in employing our native trees for purposes of ornament and shade, yet the intermixture of the foreign element adds variety for public gratification as well as material for scientific observation. The numerous parks and avenues of Washington afford fine opportunity for a display of taste and culture in this direction. The opportunity has not been neglected in the past and there is good prospect that it will receive increased attention in the future. A brief investigation respecting the number and kinds of foreign trees of which out door culture has been attempted develops the following information.

Generally, the two points which govern those having charge of tree planting are rapidity of growth and tenacity of life; hence it is that our streets and parks show so large a preponderance of the Silver Poplar or Cottonwood, (*Abele*), and the Silver-leaved Maple, (*Acer dasycarpum*), the former an exotic, and the latter a native tree. In proportion as different kinds of trees possess the two qualities named do we find them relatively present in our public grounds, To succeed in rearing many kinds of valuable trees requires an amount of care and protection, continued through a long period of years, which is not appreciated by the public.

Some very fine specimens of the European Linden (*Tilia Europea*) may be observed in the Smithsonian grounds, and on several of the streets and avenues. This species makes a regular compact head, and as a shade tree is superior to our American Lin (*Tilia Americana*). Two species of European Maples have proved well adapted to our climate and very fine examples may be seen in the Capitol grounds and other places. These are *Acer platanoides*, and *Acer pseudo-platanus*, both being called Norway Maple, though that name properly applies to the former only. These species have been quite liberally planted along the streets recently improved by the Board of Public Works.

Some very fine specimens of the Horse-chestnut (*Æsculus Hippocastanum*) are existing in the city; some very old trees in private gardens. It, too, has received attention in the recent street planting, for which it seems to be pretty well adapted. In the Congressional Garden is a very thrifty tree of *Sterculia platanoides*, which has flowered and borne fruit for several years. The fruit is a large capsule which splits, when ripe, into five leathery valves, each one bearing seed on the margin, and presenting a beautiful illustration of the structure of the capsule from modified leaves whose margins are inflexed and dilated to form the placentæ. It seems to be quite hardy in this latitude and deserving of wider culture. There are a few specimens of the Pride of India or China tree, (*Melia Azederach*), but it appears to be too far north to flourish; in the Southern States it is a favorite shade-tree. *Kœlreuteria paniculata*, also from China, is a small ornamental tree which here seems to thrive remarkably well. It has pinnate leaves of coarsely toothed leaflets, and panicles of small yellow flowers, succeeded by bunches of bladdery pods similar to those of our *Staphylea*, of which it is a near relative. Of *Albizzia Julibrissin*, the Chinese Silk-tree, there are numerous specimens which are thrifty and ornamental, and it is the only tree of the Acacia family which is cultivated in this latitude.

There are some large trees of *Paulownia imperialis* of Japan, having large heart-shaped leaves, much like the Catalpa. Early in spring it is covered with large panicles of light purple flowers; these are followed by heavy bunches of leathery capsules which remain on the tree during the winter and frequently during the following year. The branches have a straggling habit, and the tree can hardly be considered ornamental except when covered with flowers. The European Elm (*Ulmus campestris*) occurs in several of the parks, and a few large trees are found in the streets. It has a closer habit of growth than the American Elm, but is stiff and destitute of the graceful beauty of our species. The Paper Mulberry of Japan and China (*Broussonetia papyrifera*) is not much esteemed, being too coarse and unsymmetrical, but it is aggressive wherever it gets foothold, and if we should ever lack for paper material we could procure any quantity by cultivating this tree.

A few large trees of the English Walnut, (*Juglans regia*) a truly royal tree, are found in the city, and there seems to be no reason why it should not be more extensively cultivated both for ornament and profit. Of foreign Oaks we have the European or English (*Quercus Robur*) in its two varieties *pedunculata* and *sessiliflora*, and the Turkey Oak (*Quercus cerris*). The Oaks are of so slow growth that it requires many years to obtain characteristic specimens. Of the European Chestnut (*Castanea vesca*) there are a few examples. It is not notably different from our American variety, which is said to have sweeter though smaller nuts. Specimens of the European Beech (*Fagus sylvatica*) occur in a few places; a large and beautiful tree may be seen in Oak Hill Cemetary.

In the Congressional Garden is a fine example of the European Hornbeam (*Carpinus Betulus*) standing not far from one of the American species of the same age, which it has much outgrown in size, and which it excels in form and foliage. In the same garden is a specimen of the European Bay Willow (*Salix pentandra*) which is "a thing of beauty." It forms a short trunk about eighteen inches in diameter for five or six feet, when it splits up into a large number of mostly upright branches, which, although they have been headed back, reach a height of about 25 feet. Its large, dark green, glossy leaves are very pleasing. Except in its more tree-like habit and greater vigor, it seems hardly distinguishable from our native *Salix lucida*.

Of Conifers in cultivation here it will not be necessary to speak, as there is not an unusual variety. There are, however, some fine specimens of the Ginkgo Tree of Japan (*Salisburia adiantifolia*) in the Congressional Garden, of the height of 20 feet or more.

GEORGE VASEY.

The Latimer Collection at the Smithsonian Institution.

An extensive and valuable series of Stone relics illustrative of the ancient ethnology of the Antilles has been received recently at the National Museum. It was bequeathed by Mr. George Latimer, a merchant, who resided for a long time in Porto Rico, having wide connections with the adjacent islands and the United States.

The people occupying these islands before the arrival of Columbus are designated as Caraibs or Caribs, described by some authors as harmless and innoffensive and by others as Cannibals and revelling in ceremonies attended with human sacrifices. About thirty oval stone rings of this invoice are supposed to have been used in these latter performances, either to strangle the victim or to hold down by their weight his extremities whilst extended on the altar. They are neatly cut out of solid masses of trap or basaltic rock with sculptured ornamentation, and carefully smoothed or polished. In shape and dimensions they closely resemble a horse collar, and hence are usually called stone collars, The execution of such work without steel tools is very remarkable and could have been accomplished only by years of long and patient labor. The shape of a few of them is nearly circular, and a kindred implement from Guatemala has the form of the letter U, with a statement from the bishop of that place that it was formerly used for strangling victims in human sacrifices. Several of these collars are in the European museums, but have up to this time defied all conjecture as to their real use.

In the collection are also over one hundred stone celts, hatchets, chisels and general cutting tools, made of the harder kinds of stone. Several are made of jade or nephrite, a mineral held in very high esteem by all the people of Mexico, Central America and the Antilles. All of these are beautifully shaped and polished. There are also about fifty specimens of rubbing, grinding and crushing implements for reducing grains, seeds, or other food products to finer consistence, by being rolled or rubbed over a hard stone plate or tabular surface. These are of very grotesque shape, of which it is impossible to convey an idea without figures.

Stone idols, pottery, and a miscellaneous group of objects from various parts of the world accompanied the above, the whole forming one of the most important accessions ever received at the National Museum.

The donor, Mr. Latimer, was well known in our Eastern cities and frequently visited the United States to enjoy the society of his friends, the amusement of Duck shooting and field sports generally. On several occasions he travelled over Europe and picked up various curious works in sculpture and antiquities, some of which accompany this collection. He was a man of culture, and of enterprise, as is shown in his efforts to promote the welfare of the people among whom he lived. He took an active part in the Annual Expositions of Industry and Agriculture held in Porto Rico, and his name is honorably mentioned in the reports published on those occasions.

E. FOREMAN.

Remarks on the Flora of the Potomac.

Some years ago an eminent member of our Club, on a visit to Boston, found a new variety of fish, almost under the eyes of Agassiz, who threatened to retaliate, by coming to Washington and discovering a new species in the Potomac. His opportunity would have been good judging by printed records. Numerous well equipped scientists leave our Capital city every season to explore remote Territories, whose reports are generally accessible, but the student of our local subjects finds his sources of information limited to the old surveys of the adjoining States, Brereton's Prodromus, and general works.

It is ertainly not an unpromising field; Alfred Smee in "My Garden" shows how much mental food may be gathered from a few acres; how much more does a large river offer, flowing for 350 miles through a varied country? For many miles of its course it delights the lover of natural scenery with views fully equal to the more celebrated Northern rivers. The foaming rapids at the Great Falls, the wild ravines through which the river flows below, the pretty stretch of still water formed by the canal dam at High Island, beloved of anglers, the view from the Aqueduct Bridge at Georgetown, are not soon forgotten by any one sensitive to impressions made by external nature.

Between the Little Falls and Washington, the Maryland shore offers no attractions, but the other side is still covered with woods, except where stone quarries have been opened. These, unfortunately, are located at the most beautiful spots, where tiny waterfalls mark the ends of small ravines made by little brooks on their way to the river. Along these, as well as on the river-bank, are rock-gardens, such as no Olmsted or Downing could excel. It is no exaggeration to say that in the early spring-time there are acres of the flowers which are most attractive to frequenters of the woods, commencing with the snowy Blood-root (*Sanguinaria*) and Saxifrage, and continuing with the delicately cut-leaved Dutchman's Breeches (*Dicentra*), the Giant Chickweed, the pale, drooping Dog-toothed Violet (*Erythronium*), and the golden Corydalis. The wealth of floral treasures reaches its maximum at High Island, which is a small rocky hill lying between the canal feeder and the river, just below the dam at Little Falls. Totally unfit for cultivation, it is the refuge of several species that, possibly, once had a wider range, or have been brought thither by river freshets. Here we find abundantly the little *Erigenia*, or harbinger of Spring, the *Jeffersonia* with its curious twin leaf. *Erythronium albidum* grows here, and the rare *Solea* or green Violet. A little way down the river is Chain Bridge, so high it seems incredible that the river freshets have carried it away twice and left no vestige of a chain about the present structure. Below lies a low, rocky meadow, overflowed with every rise of water, where we collect *Ceanothus ovalis*, the small New Jersey tea, and another plant that when first observed was thought to be one of the most glorious "finds" we ever secured. It is the *Baptisia australis* or Southern Indigo, a leguminous plant with spikes, often a foot long, of bright purplish-blue flowers, followed by large inflated pods. Elsewhere this is cultivated, but here very few know of its existence. Specimens dry a jet black, a perverse habit that can only be cured by a vigorous use of a hot flat-iron. Alas! for the poor botanist who steals that which makes him rich and none poor, both High Island and Cow-meadow are now turned into sheep-pastures, and the utilitarian beasts are exterminating these interesting plants.

The flora and fauna of a district may be limited by sharply defined conditions, that only permit the growth of species which can comply with them, or it may be a kind of middle ground over whose boundaries come and mingle strangers from neighboring territory. In this latter case a greater variety of kinds will of course be found, and the Potomac valley is an illustration of this law. All attempts at the geographical distribution of plants make Virginia divide our Northern and our Southern floras, and if any mere line could be selected for the purpose, it would be the Potomac river. The Passion-flower, the Pawpaw, and the Trumpet Creeper steal over it to Pennsylvania, but the Yellow Jessamine (*Gelsemium*), the *Symplocos* and the Live Oak stop a little short of it in the Dismal Swamp. A few peculiar plants are usually found in such districts, and we have near Washington and Alexandria the *Polygala Curtisii*, a straggling mikwort not yet collected elsewhere. The specimens of Curtis, on which the species was established, appear as if somewhat drawn by growing in the shade, subsequent specimens referred to it being more compact, but possessing quite distinct characters in the seed. *Chondrilla juncea* is abundant in the District of Columbia, and its branching stems, entirely destitute of leaves when its composite flowers appear, look very singular when first seen. Like chicory, around Boston, it promises to become one of our most common road-side weeds. It is usually accompanied by *Calamintha nepeta*, a slender plant of the mint family. In a field near Mount Pleasant, on Rock Creek grows *Orobauche minor*, supposed to be a parasite on the roots of clover. It is introduced, and perhaps a temporary visitor, but hardly found anywhere else in this country A few orchidaceous plants are quite common, as *Aplectrum*, *Tipularia* and *Aphyllon*, but as a whole, the family does not flourish here. And finally *Obolaria* can be found plentiful on the hills northwest of Washington; a little succulent leafy herb that forms rather a pretty ornament in a fernery, continuing to flower for several weeks.

Few rivers in the older parts of our country are so little disturbed by man as the Potomac. A Congressional commission authorized to find a water supply for the city of Washington, reported in 1853 that the Potomac at Great Falls, 16 miles above the city, was the most available source. The report was adopted, and in 1855 one of the finest aqueducts in the world was begun, the bridge by which it crosses Cabin John creek being the longest span of stone ever built.

Whatever may be in the future, the purity of the Potomac water above the Great Falls is as yet only affected by natural causes, No manufactories line its banks, and no large towns pour in their streams of filth to poison the water below them; but in early Summer, as last June, it sometimes acquires a fishy taste and smell, very unpleasant, if not positively unhealthy. Every body suddenly becomes interested in the natural history of the Potomac, After a few days the water usually returns to its normal condition, and the cause is therefore, temporary, and yet of considerable importance, to affect so large a body of water, The debris from trees along the banks, and general drift stuff in the river must be pretty uniform in character.

The plants which grow in the water may be roughly divided into two classes, amphibious and aquatic. The first frequent the muddy flats, or ground only at times submerged, the second are always covered. Most common among the first is the Yellow Water-lily, or spatterdock (*Nuphar advena*), the Pickerel-weed (*Pontederia cordata*), with cordate leaves like the Nuphar, but rather smaller, and with spikes of purple flowers; the *Peltandra* also, with cordate erect leaves growing in clumps, and almost concealing its slender green spathes. Its seeds are enclosed in a curious sack of jelly that swells enormously before germination; they grow readily in a bottle. These three, with the *Zizania* or Wild Rice (often miscalled reed-grass) are the principal plants that cover the mud-flats. Scattered along the river-bank are patches of the *Orontium* or Water Club, with oval, bright green leaves, and spikes of small golden-yellow flowers with pure white stems. Singly they are not conspicuous, but seen in masses on the water, they are very beautiful.

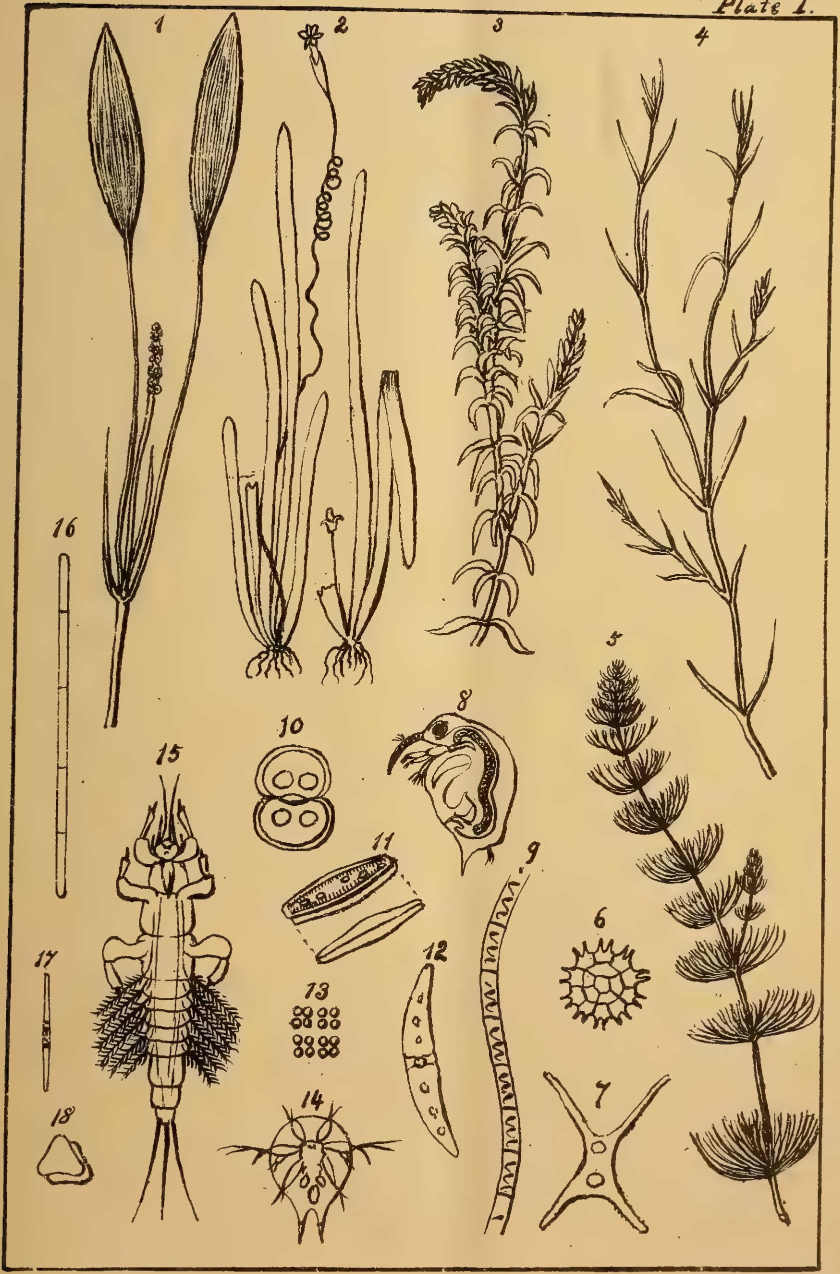
The White Water-lily is singularly rare about Washington, though it is reported in Four-mile-run, half way to Alexandria, and the variety *minor* grows near Baltimore. Some of the *Carices* or Sedge-grasses are occasionally found with the coarser plants we have mentioned, though they usually grow near the water rather than in it. They are well represented along the Potomac and its tributaries, more than sixty species, or one tenth of the whole number, being found here.

Of the aquatic plants that live wholly in the water, all but five or six belong to the Cryptogams—literally, a hidden marriage—plants with flowers so small their separate parts cannot be distinguished by the naked eye. The masses of long grass streaming with the current are *Valisneria* or Eel-grass. Its staminate flowers grow under water, and spontaneously break loose from their stems in August, and rise to the surface to shed their pollen on the floating flowers of the opposite sex. Accompanying this grass are long stems thickly set with little curly willow-like leaves that give it a curiously crisped appearance as it is

---

PLATE I.—Phenerogams, Figure 1. *Potamogeton lonchites*, ¼ natural size; 2. *Vallisneria spiralis*, ¼ natural size; 3. *Anacharis alcinastrum*; 4. *Naias flexilis*; 5. *Ceratophyllon demersum*, all natural size. Algæ, (magnified), Figure 6. *Pediastrum Boryanum*; 7. *Staurastrum dilatatum*; 9. *Sperogyra* ————; 10. *Cosmarium cucumis*; 12. *Cosmarium* ———; 13. *Merismopeda nova*; 16. *Oscillatoria*, sp. Entomostracæ (magnified). Figure 8. *Bosmina longirostris*; 14. *Cyclops quadricornis*. Figures 11, 17. 18. Diatoms magnified 55 diameters. Figure 15. Larva of Ephemera twice natural size.

Plate I.



drawn from the water This is *Anacharis*, one of our natives which has travelled to England and thriven so luxuriantly in their small streams as to have become a nuisance. It is there called the "American water weed." It is a pretty plant when not covered with sediment, which the curly leaves seem particularly adapted to retain.

In the more quiet pools will be found a plant with opposite, very narrow leaves, known as the *Naias* or Water Nymph, but without any particular grace to entitle it to such a name, which might more appropriately be applied to the *Ceratophyllum*, or Horn-leaf, the most attractive of all our water plants, with whorls of delicate round leaves, each one forked at the end. As an ornament it is only equalled by the *Proserpinaca* which we have not found in the Potomac. *Chara* sometimes grows in the pools near the river but is not a constant inhabitant. It resembles in appearance the *Ceratophyllum*, but has a fœtid smell, and is chiefly interesting to microscopists.

All these plants are used in aquariums, but seem to differ in the facility of growth after being torn from their native beds, the *Anacharis* decaying very readily, and on two occasions, recently, its introduction was followed by the death of fish, and the communication of a rank odor to the water.

Wm. H. Seaman.

Strength and Perseverance of Ants.

A few evenings since, we were much interested in watching the labors of a colony of ants that had taken quarters in a hole, just at the surface of the ground, in the wall of a neighbor's house. Our attention was first attracted by seeing a dead specimen of a white butterfly, killed a few hours before, moving slowly, yet steadily off over the brick walk, without any apparent cause, but closer observation revealed the cause to be a little brownish or black ant, scarcely quarter of an inch in length, which had grasped the tail of the insect with its powerful jaws, and proceeding backwards was progressing home in fine style. At length, coming to a slightly wider and deeper depression between the bricks, the butterfly fell in, and was stopped in its course. Then such working and twisting and manœuvring to get it out again! What a lesson in patience and industry? Two or three times the work was suspended and resumed again, another ant meanwhile coming to the rescue; but, finally, ant number one, by main strength of legs and jaws, pulled the insect out of the pit, and proceeded on its way rejoicing.

Another ant was given a piece of cracker half as large as a nickel cent, and after walking around it and over it once or twice, touching it with its feelers, or antennæ, the jaws were fastened into a projecting corner, the legs began to move like the paddles of a steamboat, and soon the immense mass moved off, and was speedily housed.

Meanwhile our little friend with the butterfly had got into trouble again, and just at home too. The dead insect had falled into another crevice so deep that only the tips of its wings projected above. Then nearly quarter of an hour was taken up in vain endeavors to lift the bulky thing out of the hole again, but without success, though half a dozen other ants had come out to render assistance, so we moved the insect around the corner of the brick, and in a very short space of time it was carried along the deep crevice, and finally disappeared in the wall.

Two other butterflies, and several pieces of cracker of various sizes were given them, and in an hour or two they were all drawn or carried into the hole out of sight and then they seemed to rest from their labors.

C. R. D.

Description of a New Species of Anodonta.

ANODONTA DEJECTA, *sp. nov.* Shell obovate, subcylindrical, inequilateral, slightly disposed to be alate posteriorly; emarginate on the base, posteriorly dilated and somewhat broadly biangular; substance of the shell of moderate thickness and disposed to be opaque; beaks scarcely elevated above the dorsal margin, having a few minute irregular undulations at their tips; ligament somewhat long; epidermis yellowish brown, or olivaceous, polished, and without rays; lines of growth coarse and somewhat distinct; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices in the cavity of the beak a little removed from the dorsal margin, which is slightly arcuate; nacre white or faintly tinted salmon color and iridescent.

Transverse diameter, 2.90 inches. Altitude, 1.35 inches. Lateral diameter, 1 inch.

Found in Arkansas River or its tributaries west of the 100th meridian, by Dr. H. C. Yarrow, Surgeon and Naturalist to the Expedition under Lt. George M. Wheeler.

A number of shells taken west of the 100th meridian were sent to me for identification, a short time ago, and among them were specimens of the above named Anodonta, which appeared to be new, and I referred Dr. Yarrow to Mr. Lea, who requested that the shells be sent back to me for description.

The specimens consist of one imperfect shell and fragments of others. The most perfect specimen is slightly abnormal, but presents features which are unquestionably characteristic, as they are indicated in the other (fragmentary) specimens. The form of the shell is somewhat like that of an arcuate *Margaritana marginata*. The lines of growth indicating the form of the half grown shell betray its resemblance to a very transverse, inflated *Unio tappanianus*. There is no familiar species of *Anodonta*, with which this species is comparable.

JAMES LEWIS.

Mohawk, N. Y. May 27th, 1875.

Reason in Animals.

We have been much interested in a recent work on this subject by the Rev. J. G. Wood,* where the author endeavors to prove that the Scriptures do not deny a future life to animals, and then, to show that the lower animals share with man the attributes of Reason, Language, Memory, a sense of Moral Responsibility, Unselfishness and Love, all of which belong to the spirit and not to the body; and to prove that animals really possess these qualities he cites more than three hundred original anecdotes, all of which are well authenticated.

It is not our purpose to review the book—which is most interesting, and written in the author's usual pleasing style—but to place on record several hitherto unpublished anecdotes which show that dumb animals do possess some higher attributes than blind instinct.

---

* "Man and Beast Here and Hereafter," by Rev J. G. Wood. New York, Harper Brothers, 1875.

We once had a young cat of the male persuasion, named 'Spot,' that was on very intimate terms with a neighbor's cat about the same age, responding to the name 'Jim.' The two cats were always together, and on the friendliest terms, until one day, in an evil hour, with 'honest Spot' looking on, 'Jim' was tempted to steal one of a number of mutton-chops left for a moment on the summer-kitchen table. We saw the theft, caught the cat, boxed his ears soundly, and then let him go, but before he had reached the fence separating the two yards, 'Spot' overtook him, and gave him a second chastising, and the sequel to the story is that 'Jim' was ever after driven from the yard by his former playmate, who would hardly permit him to show his head above the fence.

Mr. G. once had a spaniel which was a great favorite, and on one occasion the dog was asleep under the sofa near him; seeing one of the family approaching the house, he remarked to another member of the family "Mary is coming up the walk." 'Flush,' a favorite of the lady, instantly got up and ran out to meet her, still at a distance, though no one had made a similar move, and the words were spoken in tones of ordinary conversation.

On another occasion, Mr. G. was camping out on Lake George; the fire had been built quite near an old dead pine, the party were asleep, when he was suddenly waked by his hunting dog pulling at his clothing, and barking furiously. His first thought was "a panther," and giving the alarm, himself and companions sprang up, and separating to give chase, in a moment more the old pine fell with a crash upon the place where they had been lying, 'Toko,' meanwhile, having ceased his demonstrations.

When a boy, and visiting a relative in the country, we once made faces at a favorite pony that was quietly grazing in the orchard, and though we had often played around the animal, usually very gentle, on this occasion he drove us outside of the enclosure, and for several days, when near him, he evinced his evident displeasure by dropping his ears.

EDITOR.

From correspondence received as early as the first week in August, we learn that the Colorado potato-beetle has appeared in a number of counties in Vermont, Connecticut and Rhode Island.

Botany in the District of Columbia.

The Study of the plants which grow wild in the District of Columbia has always been a favorite pursuit, not only with the more cultivated portion of the citizens, but of many foreigners who from time to time have resided within its limits. The necessity for bodily exercise, the favorable opportunity presented by the few vacant hours after the offices close, and the large patronage bestowed by the Government and by wealthy citizens upon horticultural decorations, may be cited as some of the causes leading to this result. But in addition it may be stated that many profesional botanists from the time of Mr. Nuttall, including Doctors Torrey, Darlington, Gray and Engelman, down to our period when we sometimes welcome Dr. Parry, Eaton, Watson Vasey, Lesquereux and others, who have held scientific positions under the Government, have for a time resided here or made casual visits. These honored persons have infused into others a love of botany, and aided by their great knowledge, the otherwise tedious or difficult task of determining the native species of plants.

In early days, the subject was fostered by the Columbian Institute (1826), and afterwards by the Washington Botanical Society, both of which organizations preceeded the establishment of the National Institute (1840), which seems afterward to have absorbed all of the scientific energy of Washington City, and to have caused the decay and disappearance of the above named societies. Yet they did good work, and zealously labored for the promotion of scientific observation and discussion. Of the labors of the Washington Botanical Society, we have seen some evidence in two large folio volumes of botanical gray paper, in which the specimens were kept for reference after their specific characters had been determined. This arrangement was according to the system of Linnæus, beginning with Monandria, Diandria, &c., terminating with Cryptogamous plants, such as Ferns, Mosses, &c. The solving of botanical doubts, and settling troublesome cases of synonomy, was effected by sending the specimens and the statement of pros and cons, to Mr. Zacheus Collins, or Mr. Durand in Philadelphia, where the science was still in high fashion from the influence of the great Barton family, and where in fact it has been more cherished than in other city of the Union.

A great impulse was given to the study of the subject on the return of the United States Exploring Expedition (June 1842) under command of Capt. Charles Wilkes, U. S. N., bringing to this country a large number of living exotics which had never been seen here before, and which became the nucleus of the present Botanical Garden, located at the foot of Capitol Hill. The Collection was first placed in some rudely coustructed green-houses on G street, immediately on the northern part of the lot now occupied by the Patent Office. It was under the superintendence of Mr. Wm. D. Brackenridge, one of the botanists of the Expedition, and by assiduous attention, and overcoming many difficulties, he succeeded in keeping everything in good order, rapidly enlarging the stock of plants as the scanty means at his disposal permitted. The connection of Mr. Brackenridge with this collection terminated upon his assuming the charge, in co-operation with the late Mr. Downing, of laying out some of the public grounds in the city, and the present brilliancy and beauty of Lafayette Square and the Smithsonian grounds, is due to the united labor and skill of these gentlemen. A funereal urn and monument in the Smithsonian grounds has been erected in the centre of one of his best works. Old inhabitants may remember the condition of this part of the mall prior to 1850, as a large common stretching from Seventh to Twelfth street, and from the canal to B street South, presenting a surface of yellow or white clay, cut into by deep gullies, and without trees, except one or two scraggy and dying Sycamores. The streets named, were mud-roads, along which an omnibus scrambled once a day, to the steamboat wharf, and foot travel paced its muddy or dusty way over the bleak, unhospitable common in zig-zag meanderings. The landscape gardeners in exchange have given us a paradise.

E. Foreman.

FIELD RECORD.

A Case of Snake Swallowing.—Recently, while taking an early morning walk in the country, I observed, lying nearly at full length by the roadside a reptile which proved to be the Chain, or Thunder snake (*Ophibolus getulus*, B. & G.,) and upon approaching nearer, the tail of a Garter, or Striped snake (*Eutania sirtalis*, B. & G.) was seen protruding from its mouth, only about six inches remaining unswallowed. When taken up for the purpose of preserving the specimens in their relative positions, the Garter was immediately disgorged, and both animals attempted to escape. They have since been placed in a box where they remain amicably together.

Careful measurements show the length of the Chain snake to be 27 inches, with a maximum circumference of 1¾ inches, while the Garter was but four inches shorter, with a girth of 2¼ inches, being an inch greater than that of its successful antagonist.—JAMES P. STABLER, *Sandy Spring, Md.*

GRASSHOPPERS AGAIN TROUBLESOME IN MINNESOTA.—The grasshoppers have again destroyed everything in this district, but six miles south of here seems to have been their Southern limit. Old residents of this State say that before the 'hoppers visited us one week ago, we had, in this section of the country, the appearance of the best grain crop ever known in the State.

Since the 'hoppers left, two days ago, we have been making examinations, and find the vast number of eggs deposited by them are being destroyed by a white worm, many of the cells being empty. We also found vast numbers of the grasshoppers themselves were being destroyed by a white maggot, ¼ to ½ inch in length, working in their bodies. One singular fact in connection with their late visitation is that although remaining with us eight days, they did more damage in four hours, on the last day, than in all the rest of the time put together.—E. F. JACKSON, *Graham Lakes, Nobles Co., Minn., July 31st.*

On the 10th instant the grasshoppers made another incursion into this county in greater numbers than ever before, and since that date have been gradually extending their area, until the old devastated district is threatened with destruction, The ground is completely filled with eggs, and even the streets are full. More eggs than ever before are in our soil and still more are being deposited, and our greatest fear is that the eggs will hatch next Spring, in which event there will be 'hoppers enough to devastate the whole State.—E. C. HUNTINGTON, *Windom, Cottonwood Co., Minn., July 26th, 1875.*

Mr. Joseph A. Whitman, of Providence, Rhode Island, is manufacturing a little apparatus known as the Fountain Pump, which is a very useful thing in all kinds of insect warfare, where solutions are to be applied. We have experimented with it, and find it does its work in a very satisfactory manner.

EDITORIAL PENCILINGS.

Recent Valuable Collections in Ethnology.—One section of Lt. Wheeler's Expedition, during the present Summer field season, has been making extensive excavations of Indian graves, in the vicinity of Santa Barbara, on the coast of Southern California. Their results have been simply enormous, and a collection of twenty or thirty tons weight has been secured for exhibition at the Centennial.

The objects of interest secured are crania, ollas or pots of stealite sand-stone, mortars, war-clubs, hatchets, pipes, spear and arrow-heads. daggers, besides many smaller objects, bone implements, shell ornaments, &c. The party was in charge of Dr. H. C. Yarrow, the Naturalist of the Expedition, assisted by Dr. J. T. Rothrock, Mr. H. W. Henshaw and Mr. Shoemaker. While this party were operating on the main land another party in charge of Mr. Paul Shumacher, of the Smithsonian Institution, were investigating the grave mounds of the Islands in Santa Barbara Channel. They, also, have secured a vast amount of material.

Florida Litany.—A well known entomologist "who has been there," sometimes gets off the following unique and original "litany," which we are happy to reproduce for the benefit of suffering humanity:

From red-bugs and bed-bugs, from sand-flies and land-flies,
Mosquitoes, gallinippers and fleas—
From hog-ticks and dog-ticks, from hen-lice and men-lice
We pray thee, good Lord, give us ease;
And all the congregation shall *scratch* and say Amen.

Cedar Keys, Florida, must be a healthy locality for enthusiastic naturalists, as we were lately informed by a gentleman from that State, that a couple of the "profession" were arrested in this hamlet in June last, and given considerable trouble by the authorities, who assigned as the reason for the detention, "violation of the game-laws."

Col. P. E. Dye of Des Moines, Iowa, tells us that it is a common occurrence, during an invasion, for the grasshoppers to take off the edge of a scythe, dulling it completely. They "attack" the scythe for the sake of the juices of the grass, which have become hardened into a gum, along the edge, and in removing this with their hard jaws, the edge is worn off.

(*Continued from 2d page of Cover.*)

It is not intended, however, that it shall be exclusively the bulletin of any society, or the record of any particular locality, but that it shall be devoted to the *fields* and *forests* of our whole country. At the same time we shall aim to make it popular by giving fresh and interesting notes relative to fish culture and fishing, game and game-laws, economic entomology and botany and other subjects. To that end we invite brief contributions from all students of nature upon such topics, as well as upon those subjects more technical.

Though starting out modestly with but eight pages, we hope it will receive sufficiently substantial encouragement, by way of subscriptions, to enable us soon to add to the number of its pages, and thus enlarge its size and scope of usefulness.

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OCTOBER & NOVEMBER, 1875.

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

BULLETIN OF THE POTOMAC-SIDE NATURALISTS' CLUB.

CHARLES R. DODGE, EDITOR.

WASHINGTON:
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1875.

CONTENTS.

OCTOBER & NOVEMBER, 1875.

RARE AND NOTEWORTHY TREES IN WASHINGTON . . . . *Dr. George Vasey.* 33
WHITE MOUNTAIN NOTES . . . . *Prof J. W. Chickering.* 37
DESCRIPTION OF A NEW SPECIES OF FISH FROM THE MOUNTAINS OF ARIZONA . . . . *Dr. H. C. Yarrow.* 39
OAKS OF THE POTOMAC SIDE . . . . *Lester F. Ward.* 39
POTOMAC-SIDE NATURALISTS' CLUB—Record . . . *Prof. J. W. Chickering.* 42
THE BIG TREE . . . . *J. R. Dodge.* 44
GOLD-FISH BREEDING . . . . *J. R. Sclater* 46
THE HOUSE-FLY 47
FIELD RECORD 48
Notice of White Mountain Birds and Insects.—Earthquake Shock.

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PROSPECTUS.

For some time past there has been a desire for a medium through which students of Natural History and the kindred sciences at the Nation's Capital could communicate with each other the results of current observation in the field and laboratory, and, at the same time, place on record notes of any new facts of general interest to the scientific world that might come under their notice.

To meet this want, FIELD AND FOREST has been projected, and, under the patronage of the Potomac-side Naturalists' Club—a natural history society founded several years ago—it starts out with a corps of Contributors composed mainly of gentlemen of recognized authority in the various branches of science, many of whom are eminent in their specialties.

A monthly record of the proceedings of the Naturalists' Club will be given, and abstracts of papers read before the club will be published when upon subjects of special interest.

(*Continued on 3d page of Cover.*)

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

Vol. 1.—OCTOBER & NOVEMBER, 1875.—Nos. 5 & 6.

Rare and Noteworthy Trees in Washington.

Nearly all our native species of Magnolia are represented in the public grounds of the city; only a few however by specimens of good size. Lafayette Park, the Smithsonian and Capitol grounds contain several beautiful trees of Magnolia grandiflora; there are also others in private grounds.

A fine young tree of *M. macrophylla* stands opposite the entrance of the Smithsonian Institution, its large glaucous leaves having a tropical luxuriance. *Magnolia acuminata* and *Magnolia umbrolla* are also represented by several very good specimens; of the latter Mr. John Saul has a large and handsome tree at his nursery.

The tulip-tree (*Liriodendron tulipifera*) is entirely at home here and several of the public grounds contain very attractive specimens. In regular outline and beautiful foliage it is perhaps the peer of any american tree, and the street commissioners have shown their appreciation of its merits by making it the shade tree on some of the streets. In Lafayette Park there is a small tree of *Gordonia pubescens*, perhaps 15 ft. in height. In July it begins to put forth its beautiful white flowers, resembling those of Camellia, and of these a succession is kept up until the approach of frost. It is entirely hardy and deserving of more attention than it receives. Mr. John Saul has a fine stock at his 7th street nursery.

All the species of *Aesculus* or Buckeye belonging to the eastern portion of the United States are represented in the public grounds, notably in the Smithsonian and Capital grounds, and somewhat in the smaller parks and on some of the streets. A fine specimen of the Red Buckeye (*Aesculus Pavia*) adorns Pennsylvania Avenue between 12th and 13th streets. They all seem to be hardy and well adapted to private gardens and parks.

The prevailing tree in the city is the Maple; of the red and the sugar maple there are some fine examples in the Smithsonian grounds and in various places in the city. In the Botanic garden is a thrifty young tree of the Oregon Maple (*Acer macrophyllum.*) It is conspicuous by its very large leaves. and its long pendant racemes of fruit. It is thought to be poorly suited with our hot and dry summers, but if it proves hardy will be a useful addition to our variety of shade trees. The Kentucky Coffee tree (*Gymnocladus Canadensis*) has been little planted here, but there are a few very fine specimens, particularly in the grounds of the Georgetown College, one in the Smithsonian grounds, and a few in private gardens.

The Washington Thorn (*Crategus cordata*) is by no means as abundant as its name would seem to signify; the largest and oldest specimen is in the Botanic garden, where it makes a spreading tree some 20 feet high; the ground has been filled in 4 feet or more where the tree stands so that the original trunk is buried that depth below the present surface.

The American Holly (*Ilex Opaca*) is in cultivation in several of the public and private grounds, and in winter its peculiar spiny and glossy leaves furnish a pleasing relief to the dreariness of the bare trees around it, In the Smithsonian grounds is a large specimen of the Silver-bell tree (*Halesia tetraptera*) and in the Botanic garden several smaller trees of (*Halesia diptera.*) In the spring these trees covered with their abundant modest pure white flowers are objects of beauty, and in the fall when loaded with their peculiar winged fruit are also very attractive. They seem to be well adapted to general cultivation and should be more extensively planted.

The Fringe-tree (*Chionanthus Virginiana*) is poorly represented. It seems to miss its native rocky banks. In spring its large drooping panicles of pure white fringe like flowers are very showy.

Numerous large trees of the White and Red Ash (*Fraxinus Americana and F. pubescens*) are in the public grounds and on the streets. The green and black species are also in the Botanic garden and in the Agricultural grounds. The Sassafras tree although common in the surrounding country, has been rather neglected in city planting. It seems well deserving of cultivation.

Our native elms are mostly of the white species, (*Ulmus Americana.*) A beautiful tree of the *Ulmus alata*, the winged Elm, or Whahoo, stands in the Botanic garden, very unlike the common one in, its more regular and slender branches and smaller leaves. Two very fine examples of the Hackberry, (*Celtis Occidentalis*) and the variety *crassifolia* are also to be seen in the same place.

Our ordinary Sycamore in its usual form is not a particularly interesting tree, and seems especially out of place in street planting, but when subjected to careful and regular training it forms one of the most sightly and useful shade trees. A number of fine examples of these trained trees may be seen in the city, and the commissioners have planted them on several streets with the view of submitting them to a thorough trial. Under this treatment of close pruning they are considered in France among the best for street planting.

In the Capitol grounds is a noble specimen of the Pecan tree (*Carya olivæformis.*) Another equally large and thrifty one is in Georgetown, which for many years has produced an abundance of its well known and highly prized nuts.

The city and its vicinity affords an excellent opportunity of studying our native oaks, of which there are probably a dozen species. Large trees of *Quercus macrocarpa* and *bicolor* may be seen in the Botanic garden and also in the Smithsonian grounds. The Chestnut Oak, (*Quercus Prinus*,) is common on the hills surrounding the city, and in beauty of foliage and stateliness of form is hardly excelled by any oak. The variety which is figured in Michaux' Sylva nnder the name of *Q. Prinus palustris*, occurs here also, and would seem to be properly a form of *Quercus bicolor*, being distinguished from the Chestnut oak by the veining of the leaves and by the bark which is scaly like the white oak, while the true Chestnut oak has a close, darker and thicker bark, much resembling that of the proper Chestnut tree. *Quercus rubra*, *tinctoria*, *coccinea* and *palustris* may all be distinguished by an examination of the hills of the vicinity, the latter conspicuous by its rather small, deeply indented shining leaves and small acorns. The name seems a misnomer here as it grows on the driest hill in company with the red and black oaks. The Spanish oak, (*Q. falcata*,) is here also and as usual presents some strange variations.

Quercus imbricaria, the Laurel or Shingle oak is rare in the district, but the Willow oak (*Q. phellos*,) is rather frequent and some large trees may be seen. *Quercus heterophylla* was known here many years ago, and has recently been rediscovered by a member of the Club. It is probably a hybrid between *Q. imbricaria* and *Q. falcata*. It presents a strong resemblance to *Q. Leana*, of which a specimen is in the Botanic garden, raised from seed of one of the original trees near Cincinnati. The parents of *Q. Leana* are probably, *imbricaria* and *coccinea* or *rubra*.

There are in the Botanical and Agricultural grounds several trees of (*Populus angulata*,) the Carolina Poplar. There are also in the Smithsonian grounds several large trees of the *Populus monilifera*. It is doubted by some if these two kinds can properly rank as distinct species, but there is certainly in *P. angulata* a much greater luxuriance of foliage than in *P. monilifera*. The street commissioners have introduced the former on several streets, notably on New York Avenue, where one can hardly fail to notice the thrifty young trees with their large leaves of varnished green as they line each side of the car track. Certainly they now promise to be a great improvement on the old Silver Cottonwoods, (*P. alba*.)

Of native Pines, strange to say, we have a very poor show. There are indeed many fine specimens of the white pine, (*P. strobus*,) but our other species are mostly confined to nursery specimens. Of Spruces there are some conspicuous examples of the black (*Abies nigra*,) the white (*A. alba*,) the hemlock, (*A. canadensis*) and the balsam, (*A. balsamifera*.)

The American Larch seems to have had but few admirers, its place being mostly usurped by its English relative, *Larix Europea*. Specimens of the Arbor Vitæ are mostly of the small compact bushy variety so common in borders, and much resembling the Chinese arbor vitæ, which however is of a different genus, (*Biota*.) They may be readily distinguished by the very different appearance of their cones or fruit burs.

Of the American Cypress (*Taxodium distichum*), there are some noble specimens in several of the parks. During the summer months its slender branches covered with thin delicate light green leaves, make it a very attractive tree, but it is tardy in taking on foliage in the spring, and during the winter loses all its leaves. The oldest specimen of the California White Cedar, (*Librocedrus deeurrens*,) a tree some 25 feet high stands in the Botanic garden, with some smaller ones both there and in the Agricultural grounds. It forms a very compact pyramidal tree, in foliage much like the Arbor Vitæ. A number of other interesting native conifers in small specimens may be seen in the Botanical and Agricultural grounds, including the noted *Sequoia gigantea* and the two Torreyas, *T. taxifolia* and *T. Californica*.

GEORGE VASEY.

White Mountain Notes.

A week in July spent in camp within two miles of Mt. Washington, afforded good opportunity for some observations upon the flora and fauna of the region. Among fishes *Salmo fontinalis*, the brook trout, claimed special attention, and over eighty pounds rewarded our piscatory attempts, all of which were either eaten around the camp fire, or forwarded to friends.

A noticeable fact, was the almost entire absence of the common earth-worm, *Lumbricus*, so that we had to import onr supply for bait.

Along the streams *Arnica mollis*, and *Epilobium alpinum* were found sparingly, with here and there a few plants of *Geum radiatum*, var. *Peckii*, apparently washed down from the heights above, while *Alnus viridis* replaces *A. incana*, the common northern species, just as that replaces the southern species, *A. serrulata*.

July 12th, we made the ascent of Mt. Washington. Following the R. R. we found the common plants of the region, one after another disappearing, till we passed the timber belt, at an altitude of 3.000 to 4.000 feet. The first distinctively alpine plants noticed, were *Vaccinium vitis-idaea*, *V. caespitosum*, *V. uliginosum*, *Salix chlorophylla*, and *Empetrum nigrum*, closely associated, and growing in matted clumps among the rocks.

Five hundred feet higher we found dense patches of *Carex rigida*, var. *Bigelovii*, and *C. vulgaris*. Along the track appeared tufts of *Diapensia Lapponica*, characteristic and beautiful.

Reaching the summit, we found the weather record for the morning, ther. 36°, wind N. W., forty miles per hour. This rendered botanical researches rather a hardship, and we quickly descended, perhaps 1.000 feet to the plateau lying south of the highest peak. There we were sheltered from the wind, and the warm July sun brought the temperature up to a more seasonable point.

Turning toward Tuckermans' Ravine, with snow visible on its sides, we soon came to what might be called mountain meadows, or rather moors, many acres in extent, green with matted patches of the Carices already noted, *Juncus*, *Luzula arcuata*, *Hierochloa alpina*, and other grasses. *Veratum viride* is very abundant and conspicuous, its spikes just beginning to form. *Viola palustris* is plentiful. *Kalmia glauca* and *Lonicera coerulea* occur in clumps. A dwarf form of *Streptopus roseus* is common, and the bright yellow flowers of Geum add variety and color to the landscape. A little farther on *Castilleia pallida* covers the ground, and in crevices of rocky ridges we find *Phyllodoce taxifolia*, *Loiseleuria procumbens*, and *Cassiope hypnoides*.

Crossing this plateau to the westward near the old Crawford bridle path, on a gravelly plain, *Potentilla frigida* attracts our attention.

Going on, we find ourselves at the beautiful little Lake of the Clouds, and eat our lunch on a snow bank, two or three rods square and three feet thick. Here *Salix argyrocarpa*, *Betula glandulosa* and other shrubs occur in all stages of developement. Some just released from under the snow, have buds only beginning to swell, others a little farther away are in flower, while still others are in fruit, The same thing holds true for all the plants of these alpine summits, so that a difference of two or three rods in location, will often make a difference of a month in the time of flowering. *Rhododendrom Lapponicum* though quite abundant is entirely out of bloom. *Ledum latifolium* is everywhere conspicuous with its profusion of white flowers.

Having finished our explorations, we started down the mountain leaving the path, and following the little stream, which flows out of "Lake of the Clouds," down into the Gulf of Mexico, and thence into the head waters of the Ammonoosuc. The only plants of special interest, were *Habenaria obtusata*, and *Listera cordata*. But the scenery was very wild and picturesque. The descent was abrupt all the way, and every little while would lead to a precipice over which the stream would leap two or three hundred feet into the abyss, while we were obliged to make a detour in order to find some safer paths But patience and hard work at length brought us to camp again, somewhat wearied with our ten hours tramp.

J. W. Chickering.

Description of a New Species of Fish from the Monntains of Arizona.

Apocope couesi, sp. nov. At the first glance it might be supposed that this species was simply a variety of *Rhinichthys henshavii*, Cope. But a careful study of the specimens has proved it to be entirely different, and new to science.

Description.—Form elongate but broader than *R. henshavii*, with overhanging obtuse but broader muzzle; scales larger. Depth enters the total length including the candal fin 5.75 to 6.25 times, the head entering the same 4.50 to 5 times. Eye 6 times in length of head, 1.75 in interorbital width. Base of dorsal I is nearer insertion of caudal than the end of snout. Ventral fins reach nearly to anal, and are nearly reached by the pectorals. Dorsal fin originates behind the base of the ventrals. D. I-8; A. 1-7; V. 7; P. 12. Scales, 14—67—12.

Color whitish yellow, with bluish black spots on black, and sides increasing in intensity toward the occiput; no dark stripe on sides. Inferior fins yellowish.

This species is from the streams of the White Mountains, Arizona, and is reported to be very numerous by Mr. H. W. Henshaw, of Lt. Wheelers' Expedition, who discovered and collected it.

Named in honor of Dr. Elliot Coues, U. S. A., the distinguished naturalist of the "Northern Boundary Survey," to whom I am indebted for many and valuable favors in the prosecution of my Zoolological studies.

H. C. Yarrow

Oaks of the Potomac Side.

The oak has been justly regarded in all ages and countries as the emblem of strength and durability. Whatever may be the special advantages possessed over it by any other tree, there is none which can be called its peer when all its good qualities are collectively considered.

Perhaps there is no spot on the continent which has a better claim to style itself the home of the oak than the valley of the Potomac within a radius of ten miles from the nation's capital. For although the noble Live Oak fails to reach us from the south, and the grand

Mossy-cup Oak from the north; still it may be truly said that these are the only valuable species not found in a native state within the limits named. Besides being the characteristic tree of this region as respects number and abundance the oak is here represented by an unusual number of species and varieties.

From a somewhat thorough study of the genus in the vicinity of Washington, I find that of the sixteen distinct species enumerated in the fifth edition of Gray's Manual, as indigenous to the Northern United States east of the Mississippi, eleven belong to our district, as follows: *Quercus alba*, *Q. obtusiloba*, *Q. bicolor*, *Q. prinus*, *Q. phellos*, *Q. imbricaria*, *Q. nigra*, *Q. falcata*, *Q. coccinea*, *Q. rubra*, and *Q. palustris*.

Among the settled varieties of these we also find distinct examples of *Q. prinus*, var. *monticola*, and var. *accuminata*, and of *Q. coccinea*, var. *tinctoria*.

In addition to these occur several anomalous forms, presumed to be hybrids, which afford an especial interest. In no less than six of these, after a careful comparison of the leaves and fruit and a close study of their respective localities and of the species growing in the immediate vicinity of each, the original species of whose joint parentage they are the probable offspring, can be traced with a considerable degree of certainty.

A peculiar form of *Q. alba*, having leaves with short lobes and shallow sinuses directed much forward, as well as the veining, and thus simulating those of *Q. prinus*, renders it quite probable that these species have intercrossed.

There are some forms of *Q. bicolor* whose unusually long, narrow and elliptical leaves hint strongly at an affiliation with *Q. prinus*, var. *accuminata*, while on the other hand certain trees belonging unquestionably to the last named variety, not only exhibit the whitened-downy under surface of leaf characteristic of *Q. bicolor*, but also show a tendency to reduce the number of primary veins to from 8 to 10, thus affording additional proof of the ability of these forms to intercross.

Passing into the biennial fruited division, we observe this process of hybridization still more distinctly manifest.

Certain trees having some of their leaves almost entire, raise a strong suspicion that *Q. imbricaria* has exerted an influence more or less marked upon *Q. nigra.* Its union with *Q. coccinea* var. *tinctoria*, rests on a much surer basis. Two trees which I have recently discovered in a wood near the northwestern corner of the District of Columbia, growing in a wild state, have proved unusually interesting. That these should be called *Q. Leana* and not *Q. heterophylla*, I maintain for the following reasons: Their resemblance to *Q. heterophylla*, as it exists in the herbarium of the Department of Agriculture, is not sufficiently close to warrant this name, the leaves being broader and less lobed. They *do* agree substantially with the specimens of *Q. Leana* in that herbarium. They also agree remarkably well with the tree which Mr. W. R. Smith, Superintendent of the U. S. Botanical Garden has raised in his grounds from an acorn of *Q. imbricaria.* Finally on considering the locality in which these trees were found it seems impossible to believe that *Q. phellos* can have entered into the combination. In the entire wood where they are situated not an individual of that species exists. It is wholly wanting throughout the region of Rock Creek on which the grove is located. On the contrary the prevailing oak there is *Q. imbricaria*, although both varieties of *Q. coccinea* are also frequent. It cannot therefore be justly claimed that this new discovery constitutes a revival of the famous Bartram's Oak, since this was decided on the highest authority to be either "a form of *Q. phellos*" or a union of that species with *Q. coccinea* var. *tinctoria.* It is, however, none the less a botanical curiosity.

Next in point of interest may be mentioned the supposed union of *Q. nigra* with *Q. coccinea*, var. *tinctoria.* This tree I found in a grove of second growth timber lying east of the city. Its leaves most resembled those of the latter species but exhibited the rusty-pubescent under surface characteristic of the former with considerable prominence. The acorns, however, which were very abundant, were in all respects those of *Q. nigra.* Its habit was also that of this species of which several trees stood in immediate proximity to it.

Lastly there is constantly manifested a tendency on the part of *Q. falcata* and *Q. palustris* to shade off into each other. This happens by a mutual convergence of the two species, both as respects leaves and acorns, so that while an exact medium might be difficult to find, the suspicion is none the less strong that each is capable of impressing its stamp upon the other in more or less marked degrees.

The following tabular exhibit of the oaks of the Potomac side, so far as I am acquainted with them, specimens of each of which I have furnished to the herbarium of the Potomac-Side Naturalists' Club, may serve to make the subject more clear than has been done by the foregoing enumeration.

NORMAL FORMS.

Quercus alba.
“ obtusiloba.
“ bicolor.
“ prinus.
“ prinus, var. monticola.
“ prinus, var. accuminata.
“ phellos.
Quercus imbricaria.
“ nigra.
“ falcata.
“ coccinea.
“ coccinea, var. tinctoriar
“ rubra.
“ palustris.

HYBRID FORMS.

Quercus alba–prinus.
“ bicolor–castanea.
“ falcata–palustris.
Quercus imbricaria–nigra.
“ imbricaria–tinctoria.
“ nigra–tinctoria.

LESTER F. WARD.

Potomac-Side Naturalists' Club.

October 4th, (192d, meeting.)

The Secretary read a paper upon the alpine flora of the White Mountains, which will be found on another page. Mr. Ward exhibited a scorpion from Utah, shaken out from the folds of his blanket. Mr. Dodge described its method of killing flies, catching one in its claws with great dexterity, and then bringing its sting up over its head, and inserting it "where it could do the most good."

Dr. Schaeffer called attention to the fact, that much of the wooden pavement now being removed, is affected with dry rot, the microscope revealing in abundance mycelium of various fungi, in the woody tissue, in spite of the various processes to which the blocks have been subjected. It was also noticed that the round cypress and cedar blocks, are not thus affected, but are apparently as sound as when first laid. The Secretary presented from the Interior Department, a copy of Major Powell's Report on the Canons of the Colorado, and a vote of thanks was passed.

Oct. 18th, 1875, (193d meeting.)

Dr. Schaeffer presented a very fine specimen of Copperhead, *Agkistodon contotrix* of which mention has already been made in these minutes.

Mr. Ward then read a very interesting paper upon the Oaks of the District, which will be found in another page.

Nov. 1st, 1875, (194th meeting.)

Mr. Jouy presented 20 specimens of bird skins of the District. Prof. Chickering presented specimens of lignite and the accompanying tertiary strata from the excavation on North Capitol Street, also a snake specimen. Mr. Dodge presented a case of insects.

The paper of the evening was then read by Mr. Dodge, upon "The arrangement of our Cabinet of Entomology."

The various styles of cases for the preservation of the collection may be reduced to two forms, that of drawers covered with glass, or of closed boxes arranged like the volumes of a library.

The first form is considered the best, as the specimens are not subject to the constant jar that the boxes are liable to in handling or examining, and besides always remain in one position, while the glass cover protects from dust, or from *fingers*, and canes and parasols.

A convenient size is of drawer—that adopted by the Department of Agriculture—is 16 by 21 inches and 2½ inches deep, outside measurement. They are made of pine or whitewood ⅜ inches thick, dovetailed at the corners, with the bottom rabitted in ; the sides are made of two pieces, forming the box proper, about 1½ inches high, and a cover one inch, which is grooved on the inner surface near the top for the reception of a plate of glass, fastened in, when the box is made, with putty. The cover and box where they fit together are tongued and grooved, and are held together by small brass hooks and eyes on either side. This is the form of case in use at the Museum of Comparative Zoology in Cambridge.

The mechanical part of the arrangement of the insects was next described, together with the most suitable form of case for holding the drawers when filled and ready for the exhibition hall.

Prof. Chickering called attention to the very unusual amount of autumnal inflorescence. *Kalmia latifolia*, *Viola pedata*, var. *bicolor*, and other spring flowers, having been noticed in flower. Strawberries and blackberries with ripe fruit. Second crop apples as large as English Walnuts, and Chinquapins with burs just forming.

Mr. Sanborn gave demonstration of the ease with which a small roll of common bees-wax can be made to answer the purpose of a univer-versal joint, for focussing objects under a hand microscope.

The Big Tree.

There are many big trees in America and in other quarters of the globe, but this homely term has become the distinctive appellation of the *Sequoia gigantea*, a conifer of California of extraordinary size and great height, known to exist nowhere else. It was named by Dr. Lindley the *Wellingtonia gigantea*, who overlooked the fact of its close affinity with the *Sequoia sempervirens*, or redwood, described by Endlicher six years previously. In 1847 a discovery that the two belonged to the same genus was made by the French botanist Decaisne, and by our own Dr. Torrey a few months afterwards; and thus was avoided the mortification of seeing this wonderful form of the flora of America bearing the name of a British soldier.

While there are isolated redwoods of enormous size—one reported by Prof. Whitney fifty feet in circumference, one by Prof. Brewer fifty-eight, and one recently described in a scientific meeting in San Francisco as equalling the largest known specimen of the "big tree" proper—the superiority of *S. gigantea* in growth and skyward reach is indubitable. The Santa Cruz redwood is said to be 275 feet high, but the big tree ("Keystone State,") in the Calaveras Grove, is fifty feet higher, if their respective measurements are correct. Mariposa Grove, which is now a reservation granted by Congress to the State of California upon condition of perpetual care and preservation, contains five to six hundred trees, 125 of which exceed 40 feet in circumference, and some of them fall little short of 100 feet. These are larger than the average of the Calaveras Grove, and probably older, but none equal the height of the tallest in that locality, the tops of several being broken off, the highest measurement being 272 feet. The largest, the Grizzly Giant, is 93 feet 7 inches in circumference, without allowing for portions burnt away, and has branches 6 feet in diameter. Destructive fires have devastated this grove, prostrating and partially or wholly consuming certain trees and eating through the great boles of others, making apertures through which horse and rider can pass erect, while the monster tree waves its branches embellished with diminutive cones two hundred feet and more above.

The popular impression has been that these trees are not only of immense age, and in process of decay and sure of early extinction as a species, but that there are no young trees, and that the few decaying veterans are found in one or two isolated clusters only. It is not altogether well-founded. The groves discovered and described are in geographical order from North to South, Caleveras, Stanislaus, Crane Flat, Mariposa, Fresno, King's and Kawech rivers, North Fork Tule river, and South Fork Tule river; and are found on the flank of the Sierras, at an elevation of 5.000 to 6.000 feet. They lie between latitude 36° and 38° 15; while the redwoods range six degrees, from 36° to 42°. The former occupy patches miles from each other, interspersed with trees of several other kinds; the latter form dense forests by themselves. The one is found only on the Sierras, the other on the Coast Range, enveloped in ocean fogs. Both are limited to California, with the exception of a few redwood stragglers across the line in Oregon. The one, if felled, never sprouts; the other, when cut down, sends forth a profuse supply of shoots from the battered stump. The *gigantea* is presumed to be on the wane as a species, yet young plants like walking sticks are seen in the groves, and plants are propagated by thousands and are prospering in this country and in Europe. A fine specimen may be seen in the grounds of the Department of Agriculture.

The age of these giants is very great. Prof. Whitney estimated one cut down in Calaveras at 1.300 years; Prof. John Muir assumes some to be 3.000 years old. Their timber is almost indestructible. Muir saw a fallen trunk a few weeks since that had lain weathering three hundred and eighty years, and how much longer cannot be guessed, and was still in color and strength unchanged in all those years. A section had been eaten away by fire, and in the furrow of six feet deep in which the monster had reposed a seed of the silver fir (*Picea grandis*) had germinated and grown to a breadth of four feet in diameter made up of three hundred-and eighty annular rings. In falling a tree has been known to break straight across into no less than ten pieces; and yet the seasoned saplings seem tough and elastic, and young trees of six feet in diameter do not always break in falling.

A visit to one of these groves, the Mariposa, during the summer, impressed the writer as has no other flora in the continents of Europe or America, whether the majestic forms upon their own native swards, or the most wonderful of the exotic nurselings of the greenhouses. Based upon an area equal to a small cottage lot, with a rich brown trunk branchless for a hundred and fifty feet, and crowned with a towering spire of warm yellow-green foliage campactly massed, slowly growing there since the night when shepherds heralded the dawn of the Christian era, the Big tree of the Sierras is one of the wonders of the western world.

J. R. DODGE.

Gold-Fish Breeding.

Replying to W. Elliott, in the June number of *Science-Gossip:* To breed gold-fish in any numbers your pond ought not to be less than 8 ft. wide and 2½ ft. deep, with a smaller tank 2 ft. deep near the centre, for the fish to go in when the pond is cleaned out. The following plants should be placed in the pond: three of *Valisneria spiralis*, two of the Water-soldier (*Stratiotes*,) two of the Water-lily, and three plants of the *Anacharis* which is the best plant I have discovered for a pond that will cause gold-fish to breed in it. The fish will always find food where the Anacharis grows, and will eat it, hide in it, and spawn on it. I lent a gentleman a self-air acting can some five years ago to bring home two dozen of gold-fish from Paris. I was to have half the fish for the loan of the can. Two dozen were put in the can at Paris; only nine fish arrived safe; I would not take any of the fish from him, as he was making a new pond, and I was fitting up a fresh-water and a salt-water aquarium for him. I placed two of the smallest of the gold-fish in the fresh-water aquarium; the remaining seven gold-fish I placed in the new pond. The fish lived all right, but did not spawn in the pond. The gentleman came to me some eighteen months after, saying he could not get the fish to spawn. I asked him if he had placed any plants in the pond, and he said he had not; whereupon I told him he could not expect to get the fish to spawn if no plants were in the pond. I asked him to allow me to place six plants in the pond, and was allowed to do so, and placed the following six plants: one *Valisneria spiralis*, one Water-soldier, two Water-lilies, two *Anacharis*, all in plant-pots surrounded wlth rockery to keep them steady. Some time after I visited the pond, and found the plants growing most beautifully, particularly the *Anacharis*. I did not see the pond again for some months, when the gentleman sent for me, and we visited the pond together. I found the pond full of young gold-fish. There were thousands of them. We got a dip-net, and thinned them out for a minute: the gentleman did not like to destroy them in that way, so another large pond was built and the fish were thrown into it. Thousands of fish have been given away from these ponds. The *Anacharis* plants when grown too large should be taken out twice a year. When the plant has grown too long, nip off some of the young sprouts, and place them in some fresh earth in pots, to replace the old plants, which may be thrown away. This plant grows very fast. I would not recommend it for a very large pond or sheet of water, as it will soon choke it up, unless swans are kept there. Those birds feed on it, and thrive well. I think our aquarium tanks are too small for the spawn of gold-fish to come to anything. I kept a large tank for twelve years, and never got any young gold-fish from their spawn, after trying all sorts of ways. To keep the gold-fish healthy in the aquarium you must only give them a small fly or a small red worm; if you can get enough plants of *Valisneria*, do not place in any others. Above all things do not give the fish biscuit, bread, or meat, as it will cause a disease in the fish. The fish like a little gravel at the bottom. They take it in their mouth occasionly; it does them good, and cleans the mouth of the fish.—*A. J. R. Sclater, in Science-Gossip.*

The House-Fly.

The following paragraph from *Science-Gossip* is interesting, but should be taken *cum grano salis*:

The familiar house-fly is apt to be considered an unmitigated pest. It is therefore time to call attention to some recent investigations of a chemist, which go to bear out the pious axiom that everything has its use. This observer, noticing the movements of flies after alighting, rubbing their hind feet together, their hind feet and wings, and their fore feet, was led to explore into the cause, and he found that the fly's wings and legs, during his gyrations in the air, become coated with extremely minute animalculæ, which he subsequently devours. These microscopic creatures are poisonous, and abound in pure air, so that flies perform a useful work in removing the seeds of disease. Leanness in a fly is *prima facie* evidence of pure air in the house, while corpulency indicates foulness and bad ventilation. If these observations are well founded, the housekeeper instead of killing off the flies with poisonous preparations, should make her premises as sweet and clean as possible, and then having protected food with wire or other covers, leave the busy flies to act as airy scavengers.—*Science-Gossip*.

FIELD RECORD.

NOTICE OF WHITE MOUNTAIN BIRDS AND INSECTS.—On the White Mountain trip referred to on another page of this journal, the following species of birds were noticed: *Junco hyemalis*, Black Snow Bird, *Zonotrichia albicollis*, White-throated Sparrow. They were very abundant all around the mountains, and were nesting freely. A nest of the former was found on the side of Mt. Franklin at an elevation of perhaps 4.000 feet; *Dendroica maculosa*, Black and Yellow Warbler, also nesting; *Bonasa umbelles*, Ruffled Grouse, abundant. *Cyanura cristata*, Blue Jay. *Perisoreus Canadensis*, Canada Jay. Hawks of two or three species, and likewise Owls.

Specimens of the following named butterflies were captured: *Limenetis arthemis*, *Chionobas semidea*, *Melanippe gothicata*, *Danais archippus*, *Vanessa antiopa* &c. Numbers of *Papilio turnus* were seen often alighting in the road in groups of twelve or fifteen.—J. J. CHICKERING, AMHERST COLLEGE.

EARTHQUAKE SHOCK.—At Howard Medical College about 11.40 o'clock a few evenings since, a very decided shock of an earthquake was felt by six persons who were in the room at the time, all of whom perceived the vibration of the walls, blackboards &c. To parties outside the building the wave appeared to pass from N. E. to S. W. The shock was as decidedly noticed in other parts of the city.—WM. H. SEAMAN.

(Continued from 2d page of Cover.)

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CONTENTS.

DECEMBER, 1876.

OUR NATIVE TREES . . . . *Robert Ridgway.* 49
POTOMAC-SIDE NATURALISTS' CLUB—Record. . . . *Prof. J. W. Chickering.* 53
FIELD RECORD 55
Winter-Blooming Jessamine.—The Phylloxera and Potasium Sulpho-Carbonate.—Sentiment Among Insects.

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A monthly record of the proceedings of the Naturalists' Club will be given, and abstracts of papers read before the club will be published when upon subjects of special interest.

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(*Continued on 3d page of Cover.*)

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

Vol. 1.—DECEMBER, 1876.—No. 7.

Our Native Trees.

The Tulip Tree—*Liriodendron tulipifera.*

The geographical distribution of the Tulip Poplar is quite extensive, since it occurs in nearly every portion of the Eastern forest region, with the exception of Northern New England and, perhaps, the Western Gulf States. Along the Atlantic coast it extends from Florida to Massachusetts, while in the interior it is found from Michigan southward to Tennessee and Arkansas, general works containing no record of its occurrence farther to the South in the Mississippi Valley. Gray (Lessons and Manual, ed. 1871, p. 50) gives its range as from "S. New England to Michigan, Illinois and southward;" Chapman (Flora of the Southern States, 1865, p. 14) says that it is found in low grounds, from Florida northward; while Cooper, in his "Catalogue of the Native Trees of the United States" (Smithsonian Report, 1858, p. 250) gives the north-eastern limit of its range as Russell, Massachusetts, its southern limit, Florida, its north-western, Cape Girardeau, Missouri, and its south-western, Fort Smith, Arkansas, the region of its greatest abundance being the State of Tennessee.

From the above and our own observations it may be deduced that its centre of distribution is the country drained by the Ohio, and its tributaries, particularly that portion which is embraced between the parallels of 35° and 40°, from the Alleghanies to the Mississippi. In crossing the Alleghanies westward through Maryland and West Virginia, it is noticed to be very much more plentiful on the western than on the eastern slope of that range, and that it increases both in size and abundance toward the Ohio River. There, among the woods where the Coniferas are almost entirely wanting, this species and the Chestnut (*Castanea Americana*) are among the most characteristic trees, while the "Poplar" is by far the largest. From the car windows one may notice numerous columnar trunks conspicuous for their size and altitude, and it may also be observed by those acquainted with the species in other localities, that here there is a characteristic meagreness of top, there being but a few crooked, not wide-spreading branches, on the summit of a very lofty dusky grayish column. In the State of Indiana it reappears in the greatest abundance, the existing growth even surpassing in massiveness that of West Virginia; and a somewhat remarable fact is that its appearance and dimensions are the same whether growing in low, wet bottom lands, subject to annual inundation, or on the hilly lands where the conditions of the soil are widely different.

In the lower Wabash Valley the Tulip Poplar was originally abundant, and is still a very common tree; but so much destruction has been caused by the numerous saw-mills throughout the country, that no one can form an idea from the present remnant, of the gigantic dimensions of the trees of this species which stood in those magnificent forests before the axe began its depredations. Unfortunately no record of the size of these trees has been kept until within a very few years since,—too late, almost, to serve the purpose, 'though perhaps the measurements taken, and here presented, may give a pretty correct idea of the *usual* size of such trees as are now cut for lumber. The subjoined table is the result of occasional opportunities for measuring trees, rather than a systematic attention to the subject. It should first be explained that each number denotes an *actual careful mesurement by tape-line*, not a single estimate being admitted; that the circumference is invariably above the swell at the base of the trunk, or at a distance of from two to five feet from the ground, and that the length of the trunk denotes the distance from the ground to the first large limb, and not to the main fork, should there be a branch below it.

The first column of figures refers to the total length; the second to length of trunk; the third to lower circumference of trunk, and fourth to upper circumference of trunk.

145	80	21	—	*a*	Posey Co., Ind.	Mes'd by	Thos. J. Johnson.
130	60	19	—	*b*	"	"	"
125	70	16	—	*c*	"	"	"
110	50	15½	—	*d*	"	"	"
—	—	37	—	*e*	"	"	"
—	—	19½	—	*f*	"	"	Schneck.
155	91	20	—	*g*	"	"	"
142	81	17½	—	*h*	"	"	"
140	78	15	—	*i*	"	"	"
—	—	19	—	*j*	Wabash Co., Ill.	"	Rob't. Ridgway.
—	70	17	12	*k*	"	"	"
—	64	19	—	*l*	"	"	"
143	—	12	—	*m*	"	"	Dr. J. Schneck.
153	70	20	—	*n*	"	"	"
139	50	23½	—	*o*	"	"	"
168	60	20	—	*p*	"	"	"
145	82	19½	—	*q*	"	"	"
120	88	12	—	*r*	"	"	"
158	74	23	18	*s*	"	"	"
142	61	19½	—	*t*	"	"	"
140	70	19	—	*u*	"	"	"
158	72	23	—	*v*	"	"	"
—	120	—	—	*w*	"	"	"
—	100	20	16	*x*	"	"	R. Ridgway.
—	—	22	—	*y*	"	"	"
120	55	14¾	—	*z*	Posey Co., Ind.	"	Thos. J. Johnson.

Remarks on the above examples.—*a.* base hollow, felled; *b. c.* and *d.* base sound, felled; *e.* stump; *j.* circumference without bark, total height about 182 feet (according to triangulation,) trunk about 60 feet; *k.* prostrate, top cut up; *l.* prostrate, top decayed. At 100 feet from the base, the five branches are from 15 inches to 2 feet in diameter; *m, n, o, p, q, r,* felled for lumber, near Timberville; *s.* felled, trunk perfectly sound and symmetrical; *t, u,* and *v,* felled *w,* felled, cut into "saw-logs;" *x,* felled, circumference at ground, 35 feet; *y,* Stump; *z,* Sound.

From the above table it will be seen that in the eighteen specimens where total length could be measured the height ranged from 110 to 168 feet, the average being 143½, while their combined length would amount to 2413 feet, or about half a mile. The average length of the twenty-one trunks is about 72⅔ feet, (the extremes being 50, 120,) while their combined length is 1526 feet, or near a third of a mile of straight timber, their girths, ranging from 12 to 37 feet, the average of the twenty-five being 19⅗ feet. Scarcely any of these measurements represent the *maximum* dimensions, especially those of the height, which could not always be ascertained on account of the top having been "trimmed up," or because the tree was standing. A girdled, or "deadened" tree standing isolated in a large level corn-field in the bottoms, was 182 feet high according to the method of measurement—a careful triangulation. [This is example j of the above table.] A prostrate one (example x) must have been still higher when standing, for at 150 feet from the base the branches were from 1 to 1½ feet in diameter, the remaining portion having been broken and scattered by the fall of the tree, and afterwards collected for firewood. The total length was thus estimated at near two hundred feet. Several stumps are yet standing in the Wabash Valley which measure from nine to twelve feet in diameter, but there are few trees now standing which approach this size. Prof. E. T. Cox mentions one, however, in Jackson County, Indiana, which he measured and found to be 38 feet in circumference at two feet from the ground, while the trunk rose with scarcely any perceptible diminution to the height of 65 feet before the first limb was thrown out; the total height was estimated at 120 feet.

According to Prof. Cox (in epist.) "it was not uncommon in olden times to find in Posey County, Indiana, Poplar trees that would make two gunwales one hundred feet in length and two-and-a-half feet wide at the smaller end." That this statement may seem credible, it may be added that at Timberville, Wabash County, Illinois, Dr. Schneck measured a felled Poplar whose trunk had been divided into ten saw-logs of 12 feet in length each. At the latter settlement formerly existed what was probably the finest growth of of this tree extant. From inquiries of woodsmen it was ascertained that many of the trees cut were "nigh onto two hundred feet long," while many were so large that they had to be hewn down before they could be cut by the double saws of the mills.

The great size of the Tulip tree depends mainly upon the loftiness and massiveness of its trunk, the top being proportionately small, and consisting of crooked, heavy and rather clumsy branches. Had it a spread of top comparing in proportion to the size oftrunk to that of the Sycamore or Pecan, this tree would rank as the largest in the Eastern hard-wood forests.

Clad with its luxuriant foliage, of peculiar form, small or middle-sized trees are magnificent specimens of vegetation; and when bespangled by the thousands of tulip-like flowers, of pale yellow, green and orange, few trees of temperate or eventropical regions are more beautiful. The larger specimens, however, bear their blossoms and foliage at too great a height to be attractive on this account, but in winter when bare of leaves, their lofty tops of crooked dusky branches picturesque from their altitude and rugged aspect.

ROBERT RIDGWAY.

Potomac-Side Naturalists' Club.

November 15th, 1875, (195th meeting.)

Mr. Ward exhibited specimens of *Halostachys occidentalis* from the valley of Sevier River, Utah, covered with crystals, (probably some salt of soda,) also *Microstylis ophioglossoides*, from the District.

Messrs. Sanborn and Chickering exhibited several varieties of microscopes, especially the "Moss-microscope" and some others from Carl Zeiss of Jena, very satisfactory both in price and quality.

Prof. Goode gave some interesting facts respecting parasitism among fishes, notably in the case of *Brevoortia menhaden* known as *menhaden*, *porgies*, *hard-heads*, *moss-bonkers*, and at the South as *bug-fish*, from the abundance of these parasites, attaching to the inside of the mouth, and almost filling up the throat.

Dr. Schaeffer mentioned the recent discovery, or hypothesis, that the famous English "whitebait" are only young herring. Prof. Goode stated that many cases of supposed specific and even generic distinction, had been shown to be only differences of age.

Nov. 29th, 1875, (196th meeting.)

Mr. F. G. Sanborn was elected a member.

Mr. Ward exhibited specimens of the Conifers known to be indigenous to the District: *Pinus rigida* (Pitch Pine,) *P. mitis* (Yellow Pine,) *P. inops* (Jersey Scrub Pine,) Juniperus Virginianus (*Red Cedar or Savin*,) also *P. Strobus*, (White Pine,) apparently introduced.

Mr. Sanborn exhibited specimens of *Reduvius personatus* curiously covered with all sorts of refuse matter.

Mr. Jouy read the paper of the evening being a list of the birds thus far detected in the District, 230 in number.

Prof. Chickering called attention to an economic use of *Andropogon Virginiacus*, called wrongly Broom Sedge and used for making brooms in Virginia.

Dr. Schaeffer spoke of an inaccuracy of statement in a newspaper article, respecting the weight of the late Vice President Wilson's brain, which it gave as 49 ounces, adding that this is above the average of American brains, while on the contrary, the best authorities fix the average at precisely that figure.

Dec. 13th, 1875, (197th meeting.)

Dr. Vasey exhibited specimens of fruits used as food by the Indians of California, the *Mesquit*, the *Pinyon* or seed of *Pinus monophllos*, and *P. sabiniana*, a wild plum, and the acorn of *Quercus agrifolia*.

Dr. Gale read the paper of the evening upon the transformation of wood to lignite.

The questions presenting themselves for solution are, What are the conditions under which wood when cut down and exposed to moisture, will rot? What are the conditions under which it will turn to lignite?

Sundry experiments have shown that woody fibre alternately moistened and exposed to the rays of the sun, will, during the first year be bleached, but during the second year, will begin to rot. This has been demonstrated in the wooden pavements in the city streets.

When on the contrary, wood is buried some feet below the surface, so that it remains constantly wet, with little or no variation in temperature or moisture, it undergoes a very gradual change, first to lignite, and then, if the requisite conditions be supplied, eventually to coal.

This is very finely exemplified in the lignite found so abundantly in the blue clay of the Eocene, in this vicinity, as brought to light in the deep cut on North Capitol Street, also on Fourteenth Street and on the line of the Baltimore and Ohio R. R. three or four miles from the city.

Dr. Gale also mentioned the existence of extensive submerged forests on the coast of New Jersey, in the vicinity of Staten Island, sustaining these views.

Prof. Seaman spoke of the great quantity of trunks of trees, of larger size, scattered through some of the New Jersey coast swamps. This brought up the question of elevation aud subsidence of the Atlantic coast, as going on now, and within a recent period.

FIELD RECORD.

Sentiment among Insects.—Some observations made a few months since on the familiar *Canthon lævis* (Tumble-bug) of the Middle States, proving interesting to a few fellow-students to whom they were related, are here presented. It will be seen in pairs much more frequently than alone, and each pair concerning themselves about the safety of *one* ball, instead of obstructing each other as is represented in the title page of Say's American Entomology. Very generally, careful observation reveals the male, distinguished by its smaller size and other minute peculiarities, resting or clinging to the ball, and endeavoring to preserve its position on the upper side thereof, without aiding the female in propelling it over the surface. So far as the human judgment is available, the male only assists by changing the centre of gravity of the mass of which it forms a part. Not unfrequently however the ball is rolled completely over him, by a hasty push of his partner, and the favorable nature of the ground.

If the observer carefully seizes the male and quickly removes it to the collecting vial without jarring the ball, some seconds will elapse before the "widowed survivor" realizes his absence, she then ceases propelling the ball in the direction previously taken; mounts it, peers under it, and on all sides of it; gives it another fitful push or two, and then re-examines it closely with eye and antenna, then in the majority of cases deserts it entirely, on several occasions moving off a few feet only, pushing her head beneath a clod of earth or other loose material, remains perfectly still as if lost in hopeless grief for many minutes.---F. G. Sanborn.

Winter-blooming Jessamine.—This season has proved especially favorable for the beautiful winter-blooming Jessamine which adorns several gardens of this city. Notwithstanding the "cold snap" that occurred early in December, the buds have steadily developed and are now (January 15th) in full bloom. A bush, belonging to one of the members of the Naturalists' Club, which has spread extensively over the wall at the south-eastern corner of his house, and climbed to the height of ten feet, has its multitude of gracefully drooping branches literally covered with rich yellow blossoms, which, in the absence of foliage and in contrast with the bright green branches, pressnt a very brilliant and unique appearance, the interest of which is heightened by its occurrence in the dead of winter.

It may be of interest to some who have not given themselves the trouble to investigate this highly ornamental exotic, to be informed that it is of Chinese origin and was first introduced into England by Robert Fortune in 1844, where it was cultivated with success, and whence it has found its way to America. It was named *Jasminium nudiflorum* by Dr. Lindley, and is briefly described in Loudon's Encyclopædia of Plants; but, strange to say, has not been enumerated in any of our standard text-books, and is not even mentioned in the Prodromus of DeCandolle.—L. F. Ward.

The Phylloxera and Potassium Sulpho-carbonate.—In a letter to M. Dumas, M. Aubergier of Clermont Terraud, describes the use of sulpho-carbonate of potassium to destroy the phylloxera, at an expense estimated a 300 francs per hectare. The fourth day after watering with the solution, viz; the 24th day of July, most of the insects were dead. The second of August, not a single living one could be found. The destruction was complete, as can be verified by M. Balbiana and Planchon, who visited the ground, and who saw the numerous nodosities on the roots which proved the former activity of the pest. M. Dumas further stated that coincident with the disappearance of the phylloxera, the roots and leaves of the vines pushed forth with wonderful luxuriance.

(Continued from 2d page of Cover.)

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JANUARY & FEBRUARY.

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

BULLETIN OF THE POTOMAC-SIDE NATURALISTS' CLUB.

CHARLES R. DODGE, EDITOR.

WASHINGTON:
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Jan 1876.

CONTENTS.

JANUARY & FEBRUARY, 1876.

THE VITALITY OF SEEDS . . . . *Wm. H. Seaman.* 57
MISSING LINKS AMONG THE LEPIDOPTERA . . . . *Science Gossip.* 63
THE DISTRIBUTION OF CERTAIN SPECIES OF ASTER . . . *J. W. Chickering.* 65
THE AMERICAN MISTLETOE . . . . *M. H. Doolittle.* 66
PALMS AND YUCCAS OF THE U. S. . . . . *George Vasey.* 67
POTOMAC-SIDE NATURALISTS' CLUB—Record . . . . *J. W. Chickering.* 69
FIELD RECORD 71
Edible Fungi.—Dung Beetles.—Note on Mildness of the Season.
NOTICE of Cambridge Entomological Club 64

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PROSPECTUS.

For some time past there has been a desire for a medium through which students of Natural History and the kindred sciences at the Nation's Capital could communicate with each other the results of current observation in the field and laboratory, and, at the same time, place on record notes of any new facts of general interest to the scientific world that might come under their notice.

To meet this want, FIELD AND FOREST has been projected, and, under the patronage of the Potomac-side Naturalists' Club—a natural history society founded several years ago—it starts out with a corps of Contributors composed mainly of gentlemen of recognized authority in the various branches of science, many of whom are eminent in their specialties.

A monthly record of the proceedings of the Naturalists' Club will be given, and abstracts of papers read before the club will be published when upon subjects of special interest.

It is not intended, however, that it shall be exclusively the bulletin of any society,

(Continued on 3d page of Cover.)

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

VOL. I.— JANUARY & FEBRUARY, 1876.—NOS. 8 & 9.

The Vitality of Seeds.

A contribution to the *Botanische Zeitung* by Hoffman, giving the results of some experiments on this subject, has attracted general interest. He begins by admitting as true, the opinion which has obtained wide credence, that under favorable conditions some seeds may retain the power of germination indefinitely, though as a rule they die in a few years. On draining swamps, clearing timber, and on the earth thrown out of cellars or other excavations, multitudes of plants previously unknown on such spots, often make their appearance, and it is assumed that their seeds have lain dormant in the soil while surrounded by conditions unfavorable to their growth, till a change in those conditions permitted their development. One recent instance occurred on an island near Potsdam where a bed filled with varieties of Centaurea and poppies was, in 1823, turned into a lawn, the volunteers of the next summer destroyed, after which all traces of its former occupants disappeared till 1840, when it was dug eighteen inches deep and for three years was covered with numerous volunteer plants of the above kinds, by which the outline of the former bed was distinctly traced.

On the same island in 1838, in digging up a poplar, ground was thrown to the surface from a depth of 4 feet, on which thousands of *Myosotes sparsiflora* appeared, a plant never before seen on the island.

Hoffmans experiments were made with the Loess, a diluvial earth supposed to be deposited by the Rhine in a previous geologic epoch. It was thought that if seeds could preserve their vitality so long, we might obtain some of the identical forms of plants which flourished in prehistoric times, and thus gain some facts bearing on the evolution theory.

The construction of a rail-way in September 1864 gave opportunity for earth prevously undisturbed twelve feet below the surface. The workmans' tools were carefully washed before use, and the earth placed in new covered boxes which were sealed and preserved till May 1865.

Twenty-four pots were half filled with hot bed soil which had been boiled to destroy all recent seeds the surface of which was covered with 1½ inches of the Loss leaving a space of two inches under the pane of glass which covered the pot. The glass rested on a bit of wood one twelfth of an inch thick thus leaving an opening of that width for the access of air. The pots were set in a trough of water, which by capillary attraction through the usual drainage hole kept their contents moist. Notwithstanding these precautions against the introduction of cotemporary seeds, the surface of the soil was covered with a growth of moss commencing next the sides of the pots, and later several ferns appeared. But both mosses and ferns were of species common in the neigborhood or in the green-house in which the pots stood, and their spores had probably entered by the opening between the glass and the pot. A very few phenerogams produced their seed leaves, but in spite of especial care only a tender Galium developed flowers.

Two similar trials were made with tertiary sand which gave the same negative result. In September 1865, another parcel of the Loess was obtained, and next spring spread 3 inches deep over zinc boxes which were covered with glass shades whose edges were pressed into the soil, and the whole covered with a glass case whose corners were bound with zinc and covered with paper. Spring-water was poured only on the earth outside of the glass so that it must soak under the edge thereof. Several such arrangements were prepared, some being placed in a green house, others in the open air. Under these conditions the surface of the soil was soon covered with a fine net of colorless mycelium from which in July grew numerous small white fungi. There also appeared either scattering or in masses, the common mosses, generally commencing next the sides of the glass, showing that their spores were introduced by the water. A few small ferns made their appearance which probably entered the same way, and finally a single feeble spear of grass spang up which was transplanted, and on flowering proved to be *Festuca pratensis* The result of these experiments was entirely negative. The seeds which germinated were evidently of recent growth, and their introduction easily accounted for. Their occurrence under the precautions taken prove the extreme care necessary to obtain results that may be depended on, in investigations of this kind.

But M. Hoffman's experiments are not unique, and in some cases other trials seem to have confirmed the possibility of considerable duration in the vitality of seeds, though not so much as to lead us to expect to grow specimens of prehistoric vegetation.

M. Alphonse Decandolle, sowed 368 species of seeds collected in the same garden at the same time fifteen years before. Seeds of only 15 species germinated of which five belonged to the Malvaceæ, nine to the Leguminosæ and one to the Labiatæ,

In 1840, at the Glasgow meeting of the Brit. Asso. for the Advancement of Science, Messrs. Strickland, Babington, and Prof. Lindley were appointed a committee "to determine the longest period during which the seeds of plants can retain their vegetative powers, the species or families in which these powers of longest duration, and the circumstances most favorable for their preservation."

In 1841, the community reported that a circular had been printed extending the inquiries and inviting the co-operation of all interested. The inquiries are divided in two classes, retrospective and prospective. The first relate to ancient, natural or artificial deposits of seeds in soil or strata, herbaria, mummies, funeral urns, graves &c, the second to experiments on the growth of seeds collected.

In 1842, Profs. Danbeny and Henslow were added to the committee. A curator was appointed to take charge of the experiments, and seeds of 78 species, representing 60 genera and 25 natural families, were placed in brown paper parcels in earthen jars with one opening and covered with sand. Some were also placed in porous earthen jars with two apertures covered with wire gauze, and some in waxed cloth.

The Cambridge and Oxford botanic gardens, and the Chiswick horticultural garden were selected as suitable places for experiments on germination, the treament of the seeds being varied at each locality, with a view of affording the best possible opportunity for their development.

This committee continued their labors for 16 years making annual reports. In 1857 they state that "so few (seeds previously collected,) are now found to possess their vegetative powers, that it is deemed necessary to consider the object attained, and thus close the investigations."

Elaborate tables of the results were appended to these yearly reports, showing the age at which seeds ceased to grow, when preserved in the manner indicated. The following is a summary.

From thre to five sowings were made of 150 to 600 seeds of each of 338 species representing 74 natural families. In a few cases so much seed was not to be had, and in some the number sown amounted to several thousands.

158	species	ceased to	germinate at less than	3	years.
94	"	"	"	3	"
57	"	"	"	4 to 8	"
16	"	"	"	8 to 21	"
5	"	"	"	25 to 26	"
5	"	"	"	27	"
2	"	"	"	43	"
1	"	"	"	43	"

Four species of Colutea, Ulex, Dolichos, Malva, and Ipomea appear to have still retained their vitality at the conclusion of these experiments. Besides the seeds collected by the committee, whose age was known with certainty; seeds obtained from the following sources were also tried. Soil from the bed of a fresh-water lake of the tertiary epoch, containing elytra, scales and seeds of *Ceratophyllum*; Maize from Peruvian graves; Wheat, Barley &c., from Egyptian catacombs; Seeds from an Egyptian shoe found at Thebes; 100 species from Morison's herbarium, 136 years old; 24 species from Sibthorp's collection, 55 years old; and Melon seed, 26 years old, none of which grew.

In 1844, 303 packets of seeds were received from Sir W. J. Hooker, of various ages, not exceeding 44 years. The experiments with this collection gave the following results; of 92 species, 38 years old, 2 per cent. grew; of 182 species, 21 years old, 2 per cent. grew; of 42 species, 4 years old, 31 per cent. grew. The species which retain vitality the longest, were Coronilla, 42 years old, 25 sown, 17 grew; Lida, 25 years old, 120 sown, 75 grew; Cassia, 26 years old, 20 sown, 17 grew; Croton, 21 years old, 50 sown, 30 grew; Cassia, 26 years old, 100 sown, 69 grew; Phaseolus, 25 years old 25 grew. 151 packets were contributed by Miss Molesworth of which,

Cucurbita cucuzza,	13	years old,	40	seeds sown,	29	grew;
" di spagua	13	"	20	"	11	"
Melon,	12	"	50	"	20	"
"	10	"	72	"	50	"
Memoja,	10	"	6	"	4	"
Melon,	9	"	150	"	50	"
Tomatoes,	6	"	100	"	76	"

A review of these experiments shows a great variation in the germination of even recent seeds, in many cases more than half of parcels one year old failing to grow.

The *Leguminosæ* considered as a family, appear to possess much more vitality than than any other, next come the *Malvacæa*, *Tiliaceæ* and *Myrtaceæ* and lastly species of Croton (*Euphorbiaceæ*,) among those whose seeds grew after 10 or more years.

Numerous cases of alleged germination of aged seeds may be found in periodicals, in most of which the evidence is insufficient to render them trustworthy. We append a few that appear the most reliable.

Author.	Reference.	Species.	Age.	Place whence taken
Loudon.	Encyclopedia Gard.	*Curitaceæ*	10 yrs.	
Fancourt.	Gard. Chron. 1856.	*Pinus Pinea*	40?	
M. J. B.	" 1863.	Cress & Grass.	33	Bottom of pond.
MacLean.	" 1855.	Rasberry.	1500.	Roman tomb.
Tupper.	" 1843.	Mummy wheat.	3000.	
Schleider.	The Plant.	"		
Des Moulins.	Comp. to Bot. Mag., Vol. II, 1834.	*Hetiotropium.* *Medieago.* *Centaurea.*	1500.	"
Burroughs.	" "	*Centranthus.*	500.	Cloister tomb.
Decandolle.	Phisiologic Veg.	*Mimosa.*	70.	Jardin des Paris.
Home.	"	Rye.	140.	
Gerardiu.	"	Beans	100.	Tourneforts herbarium.

The growth of raspberry seeds found in the abdomen of a skeleton exhumed from a roman tomb near Maiden Castle, Dorchester, England, by Mr. Mac Lean, seems to be one of the best attested cases of extreme vitality which has been placed on record. It appears to have been fully believed by the editor of the Gardener's Chronicle, who grew some of the seeds himself, (see Gardener's Chronicle 1855;) the dentist who collected them was interviewed on the subject during his lifetime and a sworn affidavit was obtained from the laborers who assisted at the excavation.

The case related by Chas. des Moulins, is also one in which it seems difficult to pick flaws in the evidence. The tombs were undoubtedly of great antiquity, the one from which the seeds were taken was opened by the Vicar Audierne himself, the seeds were found in a number of instances forming a kind of pillow for the head of the corpse, hence they appear to have been placed there intentionally, and they commenced to grow in the papers in which they were collected before they were committed to the ground. The last fact eliminates many sources of error.

Several instances are related in Decandolle Physiologie Vegetale in none of which does the persistance of vitality exceed the limits in the experiments of the British Association, except in the cases stated.

The growth of the Egyptian wheat reported by M. F. Tupper has the appearance of probability. It was taken from an unopened mummy case by Sir Gardener Wilkinson and by him given to Mr. Pettigrew, who furnished Mr. Tupper with 12 grains which were sown with especial precautions and one grain vegetated ripend seed which the report goes on to state looks like the *Bellevoue Talavera* a modern varity. But experiments made by Figari Bey, (Gardeners' Chronicle 1863,) and by the committee of the British Asso. were unsuccesful in making mummied seeds grow, and when we consider their age, the impregnation with bitumen which is a nessary result of thier environment, and the liability to fraud and deception in the transit of Egyptian goods, the exceptional success must be regarded as doubtful.

It is much to be regretted that the numerous statements made regarding the growth of new plants where a change of superficial conditions takes place, as drainage, clearing of forests &c., are not generally supported by as careful observations as those of M. J. B., on the growth of seeds in the bottom of a pond which was known to have been dry 33 years before. The springing up of plants new to their place of growth is no proof whatever that the seeds were not deposited there within a very recent period, inasmuch as the non-existence of parent plants within self propagating distance is, as a rule, impossible to be proven. And in cases where the new species appear on freshly exposed soil, successful result from such experiments as M. Hoffman, has tried must be considered essential to place the matter beyond doubt.

Even wild animals or insects which burrow, may produce phenomena apparently very singular, for B. S. (Gardeners' Chronicle 1756,) records finding flax seeds and seeds of other plants, in nests of the "earth worm" which were from 10 to 12 feet below the surface of the ground.

Such deposits might easily become the cause of error in observations on this subject.—[*To be continued.*]

WM. H. SEAMAN.

"Missing Links" among the Lepidoptera.

M. Kunckel has described in the *Comptes Rendus* several Australian Lepidoptera which possess terebrant trunks, instead of the usual sucking probosces we have always regarded as characteristic of the order. Having read in a newspaper the depredations of a moth *(Ophideres fullonica)* on oranges, he carefully examined the trunks of these insects. Lepidoptera are specially constructed to suck up the nectar of open flowers, and to imbibe sweet fluids. M. Kunckel goes on to say:—"By a strange exception, the moths of the genus *Ophideres*, Boisd., possess a rigid trunk—a true borer of ideal perfection—capable of piercing the skins of fruits, and of boring through the thickest and most resistant envelopes. This trunk is a perfect instrument, and would be an excellent model for the making of new tools to be employed in boring holes in various materials. Partaking at once of the barbed lance, the gimlet, and the rasp, it can pierce, bore, and tear, at the same time, allowing liquids to pass without impediment by the internal canal. The two applied maxillæ terminate in a strong, sharp, triangular point, furnished with two barbs; they then become enlarged, and present on the lower surface three portions of the thread of a screw, while their sides and their upper surface are covered with short, strong spines, projecting from the centre of a depression with hard and abrupt margins. The purpose of these spines is to tear the cells of the orange-pulp as the rasp serves to open the cells of the beet-root, in order to extract the sugar from them. The upper region of the trunk is covered below and on the sides with fine close-set striæ, arranged in half screws, which give it the properties of a file; the striæ are interrupted here and there by small spines of soft consistence, which serve for the perception of tactile sensations. The orifice of the canal through which the liquids ascend is situated on the lower surface below the first screw-thread. Not content with examining *Ophideres fullonica*, Linn., I investigated all the representatives of the genus, and found that *O. materna*. Linn., *O. salaminia*, Cram., *O. imperator*, Boisd., as well as the other species, have a powerful trunk in the form of a borer. The structure of the maxilæ, therefore, furnishes a generic character of great value; moreover it establishes a closer relationship between the Lepidoptera, the Hemiptera and certain Diptera in which the maxillæ are destined to pierce tissues. The Australian colonists dread *O. fullonica* on account of the mischief caused by it in the orange plantations; for the fruits which it pierces with holes quickly spoil, and soon fall to the ground and rot, All the Lepidoptera of the genus *Ophideres* being, as I have just shown, furnished with a terebrant trunk, it is incontestable that they have similar habits, and that they will bore into oranges and other fruits. As they are very widely diffused in tropical regions, they must justly be ranged among injurious insects.

Unfortunately their early stages are unknown, so that no really practical remedy suggests itself to the mind; but their large size and striking colors, allowing them to be recognized at the first glance, they may killed without fear of reproach for commiting judicial error."—*Science Gossip*.

The Cambridge Entomological Club meets regularly during the present year as follows: January 14, February 11, March 10, April 14, May 12 and June 9, at No. 19 Follen Street, Cambridge, Massachusetts; July 14, at camp on Mt. Washington, N. H.; August 8, Meeting of the American Association, at Buffalo, N. Y.; September 8, October 13, November 10 and December 8, at Cambridge as stated above.

All Entomologists who may be in the vicinity at the time of any of these meetings are welcome guests.

The Distribution of Certain Species of Aster.

Notwithstanding the many observations made and recorded respecting Topographical Botany, one item has been quite too often neglected, alike in systematic treatises and in reports of scientific surveys.

That is, special notice of the characteristic species of different localities; not merely characteristic as found in a given locality, abundantly, or even exclusively, but as found in masses, thus giving character to the landscape, as different species of *Erica* in the Old World, or as various *Compositae*, notably the *Solidagos* often do in the New World.

These characteristic species may be fruticose, and thus changing but little with the season, except at the time of infloresence, and varying only with the boundaries of their special district.

Or they may be herbaceous, either annual or perennial, and thus vary not only with the district, but also with the season, as one species passes its infloresence, disappears, and is succeeded by another.

While as regards distribution of some of the most common allied species, they very often replace each other, either gradually, one species becoming less abundant as the other becomes more so, or else having a sharply dividing line between them, as the result of variation in soil, vicinage to the sea, water-shed, and other conditions.

The past summer it came in my way to make some observations upon several Asters sustaining such relations to each other.

By the last of August or first of September, the fields and woodsides of the Atlantic seaboard are whitened with low bushy Asters; at first seeming to be similar, and to the last perplexing the observer with all sorts of variations from any well defined normal type.

Upon examination, however, these may be separated into *A. multiflrus, Ait., A. ericoides, L., A. Tradescanti L.* and *var. fragilis.*

In eastern Massachusetts they are mainly of two species. The first of these, *Aster multiflorus,* is characterized by its small linear leaves; its crowded heads clustered in cylindrical racemes along the slender, often recurved branches, and its minute hoary pubesence. This species is found all the way from Maine to Virginia, though less abundantly as we go south.

The other species is *A Tradescanti,* distinguished by its long linear lanceolate leaves scattered along the main stem, much larger than those of the branches, generally serrate in the middle, and by its one-sided racemes of less crowded heads.

As we approach the southern border of Massaschusetts, however, our attention is attracted by another species, with heads of about the same size, but of which the ray-flowers stand out from the disk, giving the appearance of little white stars. This is *Aster ericoides*, in which the lanceolate leaves disappear and the whole plant assumes a decidedly heath-like aspect.

It gradually replaces *A Tradescanti*, so that south of New York it is the prevailing form. Closely allied to these, are *Aster dumosus*, and *Aster miser*, the former generally, and the latter always found in thickets or open woods, rather than in exposed situation.

In the section *Calliastrum*, in the same manner, *Aster Radula* occurs on the coast of Maine, the earliest of the genus ; but is replaced in southern Massaschusetts by *Aster spectabilis*, while a third allied species, *Aster Surculosus*, is confined to the New Jersey Pine Barrens.

J. W. Chickering.

The American Mistletoe.

(*Phoradendron Flavescens.*)

This parasitic shrub has been found growing on several Pepperidge, or Sour-gum trees (*Nyssa Multiflora*) in this district, among which may be mentioned two trees between Columbia road and Rock Creek, and south of Woodley road ; two trees on the race-grounds on the east side of the road, a short distance beyond the Lunatic Asylum ; and two trees very near the Potomac river, and just south of the Lunatic Asylum grounds. I am not aware that it has been found growing on any other kind of tree in this vicinity, though it is said in Gray's Manual to prefer Hickories and Elms.

The roots of the Mistletoe—if they may be properly called roots—extend a considerable distance into the wood of the tree on which it grows ; and there is a great contrast between the very soft wood of the Mistletoe and the very hard wood of the Pepperidge. Do these roots excrete a corrosive fluid and thus eat their way into the hard wood? or is the Mistletoe incapable of growing except where there are pre-existing cavities—perhaps made by worms—which its roots may enter? or, finally, may we suppose that while the Mistletoe is unable to penetrate beyond the bark of the Pepperidge, a subsequent deposit of wood surrounds and covers the base of the twig? The last hypothesis seems to me most probable.

The twigs of Mistletoe always, or nearly always grow in clusters. Does each twig grow from a separate seed? or is a single seed capable of producing a cluster?

These clusters always grow on swellings of the wood of the Pepperidge. Does the Mistletoe cause the swellings? or is it incapable of growing elsewhere? I strongly incline to the former view In a tree badly infested by Mistletoe, clusters of short twigs may be seen growing on small swellings, and clusters of long twigs on large ones, as if the swelling had grown with the twigs; and very large swellings bare of Mistletoe terminate the ends of dead branches, as if they, too, had once borne a crop of Mistletoe, and been overloaded and killed by it.

M. H. Doolittle.

Palms and Yuccas of the United States.

The Palms, although principally tropical products, are yet sparingly represented within the limits of the United States. In structure, they belong to the class *Endogens* or *Monocotyledons*, which in the tree growing species are characterized by a straight cylindrical, generally unbranched trunk, surmounted with a large terminal cluster of generally compound stalked leaves, which are more or less expanded at the base, and partly sheathing the stem. The exterior is not clothed with a distinctly separable bark, nor with concentric circles of woody matter, as in *Exogens*, but is at first covered with the decayed and adhering leaves, which, however, finally fall off, and leave a smoothish surface, and the woody matter exists in long fibrous bundles, imbedded at first loosely in the cellular tissue, and finally becoming condensed and solid from the formation of new woody bundles at the centre which crowd toward the surface the older formed ones, thus causing the oldest and hardest wood to be at the circumference, instead of near the centre as in Exogens.

Of this natural order there are four or five species in Florida and the Southern States, most of which belong to the genus Sabal, and are popularly called Palmettoes. Of these, the *Sabal serrulata* or Saw Palmetto and *Sabal adansonii* or Dwarf Palmetto do not present an erect stem, but extend themselves along the ground by a procumbent candex sometimes many feet in length.

Sabal Palmetto, by pre-eminence the Palmetto, grows with a trunk from 20 to 40 feet high, the wood of which in mature specimens is solid, and when placed under water is almost imperishable, and hence is used in the building of wharfs and piers. I show you a transverse section of a stem of this species in which you will see the structure peculiar to this class; the wood fibres are so tough that they feel like bristles where they have been severed by the saw.

I also exhibit a leaf of the same plant over 3 feet long in the blade, and appearing like those leaves of which the common Chinese fans are made. I also show a spadix or branching raceme of the fruits of this species. The nuts are nearly of a black color, and of the size of small marbles. The three species of Sabal mentioned are all that are known to our books, but in a recent visit of Dr. Chapman to the western coast of Florida, he discovered another palm probably belonging to this genus, which he calls the Silver Palmetto or Cabbage Tree. "The berries are white, but in the absence of flowers the genus is doubtful. Although only 4 or 5 inches in diameter, they attain a heighth of 30 or 40 feet. It occurs first at Cape Romano, and is found sparingly on the mainland southward. It is more common on the Keys, but I never heard of it before."

Intimately related to the genus Sabal is the Blue Palmetto, the *Chamaerops Hystrix*, of the Southern States; this forms a low stem, sometime 5 to 6 feet in height. These are all the members of the palm family which were known to occur in our country until a few years ago, when a species of palm was found in the Colorado desert near the Gulf of California. Of this Palm, seeds were obtained by Dr. Edward Palmer, and from them plants were obtained by Mr. Saunders of the Department of Agriculture, and also by Mr. Smith at the Botanic Gardens. Specimens of this Palm were sent to England, amd there it was decided that they belonged to the genus *Brahea*, and this particular species was called *Brahea filamentosa*. (?)

It is said to attain the height of 20 or 30 feet; it has been lately asserted that another species has *been found in Southern California.*

Belonging to the same class of Endogens, we have in the United States several species of lily-like plants called Yuccas, several of which have an upright woody stem, and attain the size of a small tree; of these we have in the Southern States and Florida the *Yucca gloriosa* and *Yucca alocifolia*; in western Texas and on the Mexican border we have *Yucca treculiana*, which is said to attain sometimes a height of 40 feet and a diameter of 12 to 18 inches; in Arizona the *Yucca brevifolia* or short leaved Yucca, which grows from 10 to 12 feet high frequently with numerous branches. This Yucca in some portions of Arizona covers large areas, and although forming a woody stem, it is of such a fibrous nature that it is said to be almost entirely convertible into paper material.

In the same region we have *Yucca Whippleii* and *Yucca Baccata*, the last of which, although seldom forming an erect trunk more than 10 feet high, is yet of immense value on account of the nutritious pulp of the fruit, forming as it does a large amount of the food of the natives of the country at some seasons of the year.

GEORGE VASEY.

Potomac-Side Naturalists' Club.

Jan. 10*th*, 1876, (190*th meeting.*)

Dr. J. H. Kidder, U. S. N., was elected a member.

Mr. F. Holden of the Bickmore Museum, in Central Park, New York City, being present, was invited to give some facts respecting that Institution.

He stated that while the city furnishes the building, the Museum is entirely dependent for support and enlargement upon private subscriptions.

It already embraces collections in various departments of great interest and value. The Geological and Mineralogical collection of Dr. Hall has been recently secured at an expense of $60,000.

Dr. Schaeffer called for the relation of any observations made upon the earthquake of the 23d of December.

Prof. Seaman stated that in the medical lecture room of Howard University, it was so marked that the class then undergoing examination, ran out of the building, saying that they could see the vibration of the blackboard against the walls. This was at 11.40 o'clock, and the shock lasted perhaps 10 seconds. Other members heard the rattling of windows, dishes, &c., indoors, but others, were out of doors at the time, noticed nothing.

Allusion was also made to a shock felt here very distinctly in 1852.

J. J. Chickering presented a collection of a dozen or more nests and eggs of birds of the district.

Mr. Ward mentioned the finding of two localities of *Phoradendron flavescens*, *(Mistletoe,)* on Rock Creek, and stated that in both instances it was found upon old decaying trees of *nyssa multiflora* (Sweet Gum.) Prof. Chickering spoke of several localities south of Alexandria.

Jan. 24th, 1876, (199th meeting.)

Lieut. W. L. Carpenter was elected a member.

Prof. Chickering then read a paper upon the distribution of certain species of Aster.

Mr. Ward read a paper "On the eccentricity of the pith of *Rhus Toxicodendron*," from which we make the following extract:

The whole subject may therefore be thus briefly summed up:

1. The pith of the Poison Ivy, wherever it is of moderate size and is found adhering closely, either to the bark of a living tree or to soft decayed wood at the surface of its support, is located from three to ten times nearer the inner side of the stem, and often still more eccentricity.

2. This eccentricity diminishes and frequently disappears altogether at points where there is no attachment by the rootlet.

3. It is greatly reduced in vines which cling to anything which the rootlets are unable to penetrate, as a stone wall or a post which is not decayed.

4. It diminishes relatively as the stem increases in size.

Prof. Doolittle read a paper, also, upon *Phoradendron flavescens*, or American Mistletoe.

FIELD RECORD.

Edible Fungi.—Mr. Solyom, of the Congressional Library, reports having collected and eaten the following species of Fungi in this neighborhood. Experimental tests of the edible qualities are so rare in this country that we print the list, to which we hope to make additions.

From our own experience, we are inclined to think that the bad results sometimes attributed to the use of Fungi, said to be edible, happens because they are too mature. The ripe spores of many kinds are echinulate, and all seem to be irritating when taken into the system:

Agaricus campestris,
“ arvensis,
Boletus edulis,
“ bovinus,
“ pachypus,
Cantharellus cibarius,
Clavaria coralloides,
“ flava,
“ amethystinus,
Fistulina hepatica,
Hydnum imbricatum,
“ repandum,
“ fragile,
Hygrophorus pratensis,
Lactarius vellereus,
“ volemus,
Lepiota procerus,
“ rachodes,
Lycoperdon pyriforme,
“ bovista,
“ saccatum,
Polyporus ovenus,
Russula vesca,
“ heterophylla,
“ virescens,
“ lepida,
“ alutaceæ.

—Wm. H. Seaman.

Dung Beetles.—F. G. Sanborn's article “Sentiment among Insects,” page 55, No. 7, current volume of *Field and Forest*, in reference to our Tumble-bug (*Canthon lævis,)* recalled an incident that came under my own observation.

Returning from one of my botanical rambles, in passing along a by-road or lane, I observed one of these dung-beetles rolling his ball to the verge of a deep impression made in the soft clay, (by the hoof of a horse,) and roll down into it; as thse insects, are usually in pairs, I became interested to watch his proceedings, *single handed.* I seated myself on the bank under a shade to see what engineering skill my beetle would display in this dilemma. A momentary halt on the sudden disappearance of his prize, as if at loss to know what had become of it; suddenly recovering from his surprise, he tumbled down the pit and reconnoitered the situation, and made strenuous efforts to push the ball up and over the sides, but after five or six vain attempts he kept perfectly still some seconds, when, I supposed he turned away in seeming disgust, and about to abandon the ball. After some search he found the shallow inclined side of the pit, and made his escape, I followed him with my eyes across the lane, and concluded the abandoned ball would remain in the pit. The delightful scenery from this point of view and the balmy air, made me in no hurry to leave my position.

Now comes the sequel, which was a new phase in a creature like the beetle, which is certainly of a low order of instinct. Mr. Beetle came with an assistant and that for a purpose; these two creatures tugged and toiled in pushing the coveted ball up the steep inclined plane, three or four times, and when just on the upper verge, did the laws of gravitation overcome their muscle, causing the ball to roll down to the base with one of them clinging to it. I was about to aid them, as a reward for their perseverance, when behold, nothing daunted, they raised it to the verge, poised it, and out it came to the ordinary surface, and they trundeled it off in triumph to their place of destination.

Can a beetle reason? does instinct suggest an idea to seek aid? I simply state a fact. A botanist and entomologist for thirty years—having devoted much of my time to the natural sciences—will account for the interest taken in the matter.—JACOB STAUFFER, *Lancaster, Pa.*

[Although Mr. S. speaks of the beetle as a *male* it was doubtless a *female*.—ED.]

THE unprecedented (since 1776) mildness of the season has brought into bloom several of the earlier flowering plants.

Draba verna, *Stellaria media*, *Capsella bursa-pastoris*, and *Taraxacum Dens-leonis*, have all exhibited infloresence during the first week in January, 1876; and *Jasminum nudiflorum* has been in its glory of golden stars ever since the year came in.

This fine species is worthy of more general knowledge and cultivation than it has yet secured. It is a Japenese species, is perfectly hardy here, and would doubtless prove so farther north, and is, in this latitude, our earliest flowering plant of any conspicuous size.—J. W. CHICKERING.

(*Continued from 2d page of Cover.*)

or the record of any particular locality, but that it shall be devoted to the *fields* and *forests* of our whole country. At the same time we shall aim to make it popular by giving fresh and interesting notes relative to fish culture and fishing, game and game-laws, economic entomology and botany and other subjects. To that end we invite brief contributions from all students of nature upon such topics, as well as upon those subjects more technical.

Though starting out modestly with but eight pages, we hope it will receive sufficiently substantial encouragement, by way of subscriptions, to enable us soon to add to the number of its pages, and thus enlarge its size and scope of usefulness.

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CONTENTS.

MARCH & APRIL, 1876.

Entomological Gleanings in Southern Fields . . . . *Chas. R. Dodge.* 73
A few words on Cocoons and Cocoon Builders . . . . . *F. G. Sanborn.* 76
Birds of the District of Columbia . . . . *R. W. Shufeldt.* 79
Notes on the Alpine Insect Fauna of the Rocky Mountains
. . . . *Lt. W. L. Carpenter, U. S. A.* 80
Flora Columbiana 83
Potomac-Side Naturalists' Club—Record . . . . *J. W. Chickering.* 88
Note on the Bank Swallow.—Early Flowering Plants. 88

PUBLISHER'S DEPARTMENT.

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Contributions of notes are solicited on subjects pertaining to Natural History, and kindred topics, from all who are interested in the study of nature.

Address all communications Editor Field and Forest,
P. O. Box 273, Washington, D. C

PROSPECTUS.

For some time past there has been a desire for a medium through which students of Natural History and the kindred sciences at the Nation's Capital could communicate with each other the results of current observation in the field and laboratory, and, at the same time, place on record notes of any new facts of general interest to the scientific world that might come under their notice.

To meet this want, Field and Forest has been projected, and, under the patronage of the Potomac-side Naturalists' Club—a natural history society founded several years ago—it starts out with a corps of Contributors composed mainly of gentlemen of recognized authority in the various branches of science, many of whom are eminent in their specialties.

A monthly record of the proceedings of the Naturalists' Club will be given, and abstracts of papers read before the club will be published when upon subjects of special interest.

It is not intended, however, that it shall be exclusively the bulletin of any society,

(Continued on 3d page of Cover.)

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

Vol. 1.— MARCH & APRIL. 1876.—Nos. 10 & 11.

Entomological Gleanings in Southern Fields.

As comparatively little is known of our Southern insect fauna, owing to the limited number of observers in this most extensive field for entomological research, we deem it important that any notes of interest should be placed on record. We have therefore brought together a few that have come under our notice, while Natural History Editor of a Southern Agricultural magazine, for publication from time to time as contributions to the entomology of the South.

Goniloba olynthus B and L.—Three nearly full-grown larvæ of this insect were found on the foliage of *Canna indica*, or Indian Shot, about the 10th or 12th of June, in Charleston, and received a few days later. They were at once placed in a breeding box and supplied with tender leaves of the canna, which they devoured with avidity, having first curled the leaf just enough to form a convenient hiding place, although they do not confine themselves exclusively to it, for more than once they were observed stretched out at full length on the foliage, or on one of the sides of the box.

When about to change to pupæ, which took place on the 19th and 20th, they fold the sides of the leaf closer together, fastening it with silken threads in the same manner as many of the *Tortricidæ*, and cover its entire inner surface with a web of white silk, so fine that it resembles a white powder. Two slight threads, or loops, one across the thorax, and another at the end of the body to which the tail is fastened, serve to keep the pupæ in place when the leaf is torn open.

The butterflies came out June 26th, 27th and 28th, and in general color and form resemble the skipper or Hesperian, though much larger. We append the following description:

Larva about two inches in length, head reddish yellow, with a triangular black spot in the centre and two black spots on each side; mouth parts black. Color, greenish tinged with blue, and veined with lines of white radiating from the spiracles, which together with lateral lines, are also white; under side whitish, tinged with green.

On the ninth ring there are two spots just under the dorsal stripe, showing larger and more plainly before the last moult; last pair of spiracles larger than others.

Pupa about 1.37 inch in length, each end terminating in a point; that from the head projecting in front so as to form a kind of horn. An appendage, supposed to be the sucking tube, extends, free, from the end of the wing-case nearly half an inch beyond the tail. Color, greenish-white at first, as if covered with a bloom, and with two rows of black dots (four on each ring) upon the back. The color, however, changes, becoming darker as the insect matures.

MANTIS CAROLINA.—One morning in January we were much interested in watching the hatching of the eggs in an egg-cluster of *Mantis Carolina,* commonly known in the Southern States as rear-horses. The cluster of eggs, as deposited by the female, were placed in the fall, in a wardian case filled with ferns, in the rooms of the Entomological Cabinet, at the Department of Agriculture, and the early hatching was doubtless due to the uniformly warm temperature of the room.

Our attention was first attracted one morning by a number of small yellowish points above the ridged portion of the egg-clusters, when suddenly, to our suprise and delight, one by one the little points seemed to rise or glide out of the crevices, so to speak, in which they had lain, without any motion of their own; in fact, as they tapered down to a point, regularly, from the head, it seemed as though the cell walls had been suddenly compressed, and had forced them out. Fairly hatched, and lying helpless on a projecting ridge of the sash, we had a fine view of them through the magnifying glass, which clearly revealed their large triangular heads and bead-black eyes, and their slender legs, which were pressed close to the side of the body. The whole was enclosed in a delicate membrane, hardly visible even with the magnifier, and altogether they seemed more like the pupæ of some species of flies we have seen, than juvenile "rear-horses."

A moment of helpless inactivity, and then all those six little legs commenced working and twisting, till, finally perfectly free, and the now useless envelope or membrane brushed carelessly away, our little hero stands erect, with head cocked to one side, as saucy and defiant as only a mantis can look. Their color, when first hatched, is honey-yellow, but in a few days they become quite dark, and as active and quick in their motions, as their full grown ancestors, although lacking the wings.

THE TRAP-DOOR SPIDER.—A fine specimen of this wonderful spider was received during the summer of 1873, from Mr. M. B. Wever, of Edgefield County, S. C., and proved of such scientific interest that after examination it was handed over to the United States Department of Agriculture to be placed in its museum. The nest was about four or five inches deep, was silk-like in texture, and was so closely united to the soil that it seemed a part of it. The most singular feature of the nest, which measured about an inch in diameter, was a tight fitting lid or trap-door, composed of the same material as the walls of the nest, but, very much thicker and parchmentl-ike, and united for a space of three-quarters of an inch on one side, in a straight line, forming a perfect working hinge. The mouth was turned outward to receive the lid, so that when the nest was closed not the slightest appearance of an opening could be detected.

For a number of days the specimen remained on our table in a glass globe, such as is used for goldfish, the top being covered with gauze; and during all that time, though closely watched, the spider made no attempt to raise the lid or trap-door. That such was not the case during the night we easily demonstrated by placing a number of large flies in the globe every evening. In the morning the flies were always fonnd to have disappeared, which would indicate that the animal is night-feeding in habits. On one occasion a *cicada*, or harvest-fly, and a grasshopper were placed in the globe, but neither were touched, so, doubtless, the spider confines his diet to "small game."

Desiring to make the acquaintance of our prisoner, on several occasions we attempted to open the door, or lid, but this was held down so tightly by the spider, by means of its strong claws, that we had to give it up. Finally, however, a pair of strong forceps were carefully inserted under the lid, which was then easily pryed open, the spider meanwhile retreating in haste to the bottom of the burrow, from which place it could only be coaxed by again closing the nest. Once, and once only, it was brought to view by means of a twig thrust down after it into the bottom of the nest. This the spider seized with its jaws in a very savage manner, and held on long enough to be fairly dragged out of the hole, instantly retreating, however, so that only a brief opportunity was given for observations as to size, color, etc. The experiment was repeated, but the spider always let go of the twig as soon as it was brought to the top of the burrow. It was judged to be about two inches long, and of a dark-brown color, the legs and head, together with the jaws, (which were unusually large and strong,) appearing quite black.

The spider resembles so closely in habits, nest, etc., the trap-door spider of the West Indies, that at first doubts were expressed as to its having come from South Carolina, until Mr. Wever's second letter was received, assuring us that such was the fact.

The spider of the West Indies first digs a cylindrical burrow with its jointed fangs and mandibles, from four to ten inches in depth, and about one inch in diameter; the bottom is rounded, and the top, which is level with the surface of the earth, is closed by a circular lid, continuous with the tube for about a third of its circumference, and this part may be called the hinge. The mouth of the tube is commonly dilated a little, so as to form a slightly recurved brim or lip, and the lid is sometimes a little convex internally, so as to fall more accurately into the mouth and close it. Thus, we see that the two nests agree very closely, and the singularity is that such a nest, or a pair of them, should be found as far north as the State of South Carolina, which makes it, in considering the subject of geographical distribution, of far greater value than a mere specimen of natural history.

CHAS. R. DODGE.

A few words on Cocoons and Cocoon Builders.

The word cocoon properly signifies, in its restricted sense, a case or covering woven by the larva of an insect of a substance secreted in its own body, which envelops and protects the larva during its subsequent changes into pupa and imago. In a broader sense it is with less propriety applied to the egg-cases of spiders and to the hollows lined with sawdust or grains of earth in which many beetles undergo their transformations, as well as to the cases constructed by larvæ for their habitation during the larval period, and which they transport from place to place. The great majority of the *Lepidoptera* have in the larva state two elongated sacs or vesicles, doubled once or twice upon themselves, and occupying each side of the space between the alimentary canal and the tracheal system, and extending along the posterior two-thirds of the body. From the forward end of each of these glands a tapering duct passes directly to the lower lip of the larva, where they unite and terminate in a minute projecting teat or tubule. A few rudimentary muscles are frequently found controlling the contraction of the sacs, in which a viscous syrup or secretion is being elaborated, and a minute sphineter muscle is frequently found surrounding the mouth of them. After the fourth or fifth moulting of the larvæ these glands are generally found present, but in miniature, on dissection ; but as the end of the season approaches, and the ninth or tenth moulting completed, they will be found to have reached a nearly full size in those species which never "spin" until the approach of the pupal metamorphosis. In the *Clisiocampas*, (the web-worms of the apple tree and wild cherry,) a few other allied species of the *Bombycidæ*, and in many of the *Phalaenide* and *Tortricide* groups the silk glands are well developed at an early age, and the slightest touch of the leaf upon which they are feeding will cause them to attach their thread and drop suddenly some feet before they check their descent. The extreme rapidity with which the gummy secretion hardens is finely illustrated in this action. The attenuated thread, in many cases not exceeding 1-200,000 of an inch in diameter, loses its water immediately on exposure to the air.

The thread, after it has issued from the body of the larva, is commercially termed "silk" (serica,) but when the larva has been soaked in acetic acid, then split open longitudinally, and the glands, with their contents, removed, drawn out to a length of 18 or 24 inches and dried, it is known as "gut," and is used in the manufacture of fishing tackle, for attaching hooks to lines, and in delicate machinery. The material for this latter purpose is generally obtained from the silk-worm proper, (*Bombyx mori,)* the alianthus-worm, (*B. Cynthia*,) and one or two other allied species. Most patient and elaborate experiments have been made, especially within the last fifty years, to utilize our native American species, but with very limited success, *Cecropia* being refractory in confinement, *Luna* secreting a much smaller quantity of dark-colored material, and *Promethea* having the peculiar habit of woolding its very fine thread around the twigs of the trees on which it feeds, while *Polyphemus* alone has proved docile in confinement, and, although producing a coarse thread, the most valuable for many purposes. The thread differs from most other fibrous substances in its microscopic characters only in being of exceedingly variable diameter, this depending largely upon the rapidity with which it is extracted from the body of the insect at different periods, and in being thoroughly homogeneous, translucent, and without texture, while the web or thread of the spider, issuing from thousands of minute orifices, termed spinnerets, situated in a quincuncial form on the under surface of the spider's abdomen, is a compound thread of which the component filaments are readily distinguishable under the microscope.

Beside the *Lepidoptera* many of the families of the *Hymenoptera* spin or weave a more or less tough and substantial cocoon, some, as *Gruptus* and *Ophion*, even spinning their own tough cases, while perfectly protected by the still tougher coating of the *Promethia's* or *Cecropia's* cocoon. The saw-flies' cocoons are generally of thinner and brittler character than those of the *Ichneumons*. Those of the *Pelopoeus* and some other *Sphegedæ* are still thinner and more brittle, but encased in a solid wall of mud-cement, not unfrequently half an inch in thickness.

Some at least of the *Pseudo-neuroptera* spin from a tubule on the under surface of the last segment, reversing the position of the orifice from that of the *Lepidoptera*.

The greater portion of the *Pseudo-neuroptera* spin a silken elongated cocoon, which is still further protected by the incorporation therewith of small twigs, bits of grass, fragments of leaves, or pebbles and grains of sand. This cocoon, open at one end, is inhabited by the larva, which drags it from place to place, protruding its head and six slender feet from the open end, while its curved pro-legs securely clutch the silk at the other extremity. At the approach of its pupal transformation it builds a fine lattice-work of silken fibre across the heretofore open passage, and passes into the pupa state.

F. G. Sanborn.

Birds of the District of Columbia.

The Blue-bird, which is considered the harbinger of Spring in the North, could barely be relied on in the District, as it is quite commonly seen all through the winter; but especially on those bright warm days which occur unexpectedly in our latitude in the middle of winter, and which start the Robin and Blue-birds singing as if in anticipation of an early Spring.

I have a Cat-bird in my collection which was caught in a common trap with some Snow-birds in February. The first Crow Black-birds were seen this year about the middle of February. Pewee (*Sayornis-fuscus*) March 6th, Kingfisher March 19 and a Redstart is said to have been seen on March 10, but I have doubts of the identification, and do not think it could have been a *Setophaga*.

Red-shouldered Black-birds were seen April 2d.

The following is a list of the common permanent residents in the District:

Cathartes aura,
Accipiter cooperi,
" fuscus,
Circus hudsonius,
Scops asio,
Otus wilsonianus,
Picus pubescens,
Colaptes auratus,
Sialia sialis,
Ampelis cedrorum,
Certhia americana,
Lophophanes bicolor,
Spizella pusilla,
Cardinalis virginianus,
Corvus Americanus,
" ossifragus,
Cyanura cristata,
Ortyx virginiana,
Aegialitis vociferus,

Falco sparverius,
Buteo borealis,
" lineatus,
Haliaetus leucocephalus,
Bubo virginianus,
Brachyotus cassini,
Sphyropicus varius,
Turdus migratorius,
Aix sponsa,
Thyrothorus ludovicianus,
Sitta carolinensis,
Chrysomitris tristis,
Melospiza melodia,
Sturnella magna,
Cyanura cristata,
Zenaidura carolinensis,
Bonasa umbellus,
Botaurus minor,
Philohela "

The common winter residents are:

Ectopistes migratoria,
Bucephala americana,
Regulus satrapa,
Carpodacus purpureus,
Spizella monticola,
Mareca americana,
Aythya americana,
" vallisneria,
Anas boschas,
" obscura,
Querquedula discors,
Lophodytes cucullatus,
Chroicocephalus philadelphia,
Podiceps holbolli,
Erismatura rubida,
Anthus ludovicianus,
Eremophila alpestris,
Junco hyemalis,
Scolecophagus ferrugineus,
Fulix affinis,
" collaris,
Bernicla canadensis,
Dafila acuta,
Nettion carolinensis,
Bucephala albeola,
Mergus serrator,
Larus delawarensis,
Podilymbus podiceps.
Podiceps cornutus.

R. W. SHUFELDT.

Notes on the Alpine Insect Fauna of the Rocky Mountains.

The mountain ranges of the world produce a fauna of remarkable interest in its bearing upon the discussion of geographical distribution and the existence of varietal forms, which have resulted from the great climatic changes through which the globe has passed. When it is found that certain insects occur uniformly in the mountains of Asia, Europe and America at great elevations and in British America at high latitudes, the significance of this fact becomes apparent, and we are led to look for other causes of more importance than slight variations of climate. The influence which the glacial period exerted in causing a change of habit should be regarded as of primary significance in its effect upon the distribution of life. Thus we see certain insects on Mt. Washington, N. H., which are lost sight of as we journey westward through the great expanse of valley and plain to the foot of the Rocky Mountains; as we ascend them and approach the verge of the alpine flora, these same species re-appear with wonderful regularity.

The Alpine insect fauna of America should be as but a fragment of that which survived the geological changes which occured at the close of the Tertiary epoch. Although the mountain genera and species are nearly all represented in the Arctic fauna by the same species or their analogues, yet the number inhabiting the latter region is greatly in excess of the former, as would naturaly be supposed in view of the general migration of the Alpine fauna which must have occured when the great ice field receeded to the North.

The moths of the Pacific Coast are generally larger than those of the Rocky Mountains, and almost invariably larger than the same species from New England and Labrador. The western species also show such a marked increase in the length of wing that it may be regarded as a law of variation similar to that which obtains with the North American birds. Dr. A. S. Packard, Jr., regards this variation of peripheral parts to be due to the more genial climate and greater rain fall of the western coast. I would like to suggest the possibility of this variation being in some degree due to the prevalence of high winds which have operated to produce greater developement of the wings as a natural result of greater habitual exertion in combating them. And also to the acquisition of nomodic habits, rendered necessary in a comparatively barren region where vegetation is not as exurberant as in more civilized localities which have been under cultivation for a long time.

Caloptenus spretus, the swarming grasshopper, singularly confirms this law. This insect having been accustomed to sustain a flight equal to twenty degrees of latitude, has consequently developed more powerful wings than the same species in the eastern states, which differs in no respects from the western insect, except in its habit of local residence and its shorter wings.

As regards variation of color, I believe that species from a cold climate or where there is an unusual absence of sunshine will be characterised by the predominence of sombre hued types, or will present a bleached appearance when compared with specimens from a warmer climate. In the Arctic regions the short summers seem poorly adapted to the developement of vivid colors, and we accordingly find few of the *Coleoptera*, known to occur then, which are remarable for bright colors. The same fact is noticeable in the *Coleoptera* obtained from the western mountains above the timber line. However, more complete data regarding variation in color should be collated before the facts can be regarded as establishing any conclusive law of melanism.

Although I have not had an opportunity to institute extensive comparisons between collections from different mountain regions; observations made in the west, during several seasons, have convinced me that in general the animal kingdom existing at great elevations is as dwarfish as the vegetable kingdom.

This is especially apparent in the *Coleoptera*, *Hemiptera*, *Orthoptera*, *Neuroptera and Arachnida*, the types of which are usually represented by the smaller species. But this does not appear to be the case with the *Lepidoptera*, *Hymenoptera* and *Diptera;* which furnish large sized forms, especially prominent, among which are the *Papilionidæ*, *Argynnides*, *Apidæ Tabanidæ.*

The Southern Rocky Mountain chain appears to support a greater abundance of some orders of insects than the Northern. A seasons' collecting above timber line in northern Colorado, only produced five species of butterflies, while the mountains of New Mexico yielded sixteen species.

The ratio of luxuriance, however, in the case of some other orders is largely in favor of the northern mountains; a result seemingly incongruous, but which undoubtedly bears directly upon the biology of each order of insects. Of all orders the *Lepidoptera* is the one which most delights in a warm climate and bright sunshine, and any deviation from such an habit should be regarded as an involuntary change rendered obligatory by the slow substitution of a cold climate during ages of progress in their developement.

The temperature of the climate of the mountains of New Mexico is considerably warmer than that of the same elevation in Colorado; the alpine flora consequently extends into higher regions in New Mexico, making a suitable habitat for the *Lepidoptera*, *Hemiptera* and *Diptera*, three of the most delicate orders of insects. The *Coleoptera*, *Hymenoptera*, *Orthoptera*, *Arachnida* and *Myriopoda* being more hardy, accordingly predominate in more northern regions.

In the collection made by myself last season in New Mexico and Colorado at an elevation exceeding 12,000 feet above the sea, there were 17 species of butterflies, 4 of moths, 7 of *Hymenoptera*, 30 of *Coleoptera*, 10 of *Hemiptera*, 5 of *Orthoptera*, 5 of *Aranenia*, 1 of *Myriopoda* and 2 of Land Shells. Of this collection nearly one half of the species are known to occur in Alaska, Arctic Regions, Labrador and Mt. Washington, N. H. Further research will undoubtedly establish still more closely the similarity existing between the faunæ of the Rocky Mountains and the circumpolar regions.

Lt. W. L. Carpenter, U. S. A.

FLORA COLUMBIANA.

A Catalogue of the plants growing without cultivation in the District of Columbia:

RANUNCULACEÆ.

Clematis.

1. ochroleuca, Ait. Hills S. of Alexandria.
2. Viorna, L. High Island.
3. Virginiana, L.

Anemone.

4. Virginiana, L.
5. nemorosa, L.

Hepatica.

6. triloba, Chaix.

Thalictrum.

7. anemonoides, Michx.
8. dioicum, L.
9. Cornuti, L.
10. purpurascens, L.
    var. ceriferum, C. F. Austin.

Ranunculus.

11. alismæfolius, Geyer.
12. pusillus, Poir.
13. rhomboideus, Goldie.
14. abortivus, L. & var. micranthus.
15. sceleratus, L.
16. recurvatus, Poir.
17. repens, L.
18. *bulbosus*, L.
19. *acris*, L.

Aquilegia.

20. Canadensis, L.

Delphinium.

21. tricorne, Mx. Island above Little Falls.
22. *Consolida*, L.

Actæa.

23. spicata, L., var. rubra, Michx.

Cimicifuga.

24. racemosa, Ell.

MAGNOLIACEÆ.

Magnolia.

25. glauca, L.

Liriodendron.

26. Tulipifera, L.

ANONACEÆ.

Asimina.

27. triloba, Dunal.

MENISPERMACEÆ.

Menispermum.

28. Canadense, L. High Island.

BERBERIDACEÆ.

Caulophyllum.

29. thalictroides, Michx. High Island.

Jeffersonia.

30. diphylla, Pers. High Island.

Podophyllum.

31. peltatum, L.

NYMPHÆACEÆ.

Nuphar.

32. advena, Ait.

PAPAVERACEÆ.

Chelidonium.

33. *majus*, L.

Sanguinaria.

34. Canadensis, L.

FUMARIACEÆ.

Dicentra.

35. Cucullaria, D. C.

Corydalis.
36. flavula, Raf. High Island.
Fumaria.
37. *officinalis*, L.

CRUCIFERÆ.

Nasturtium.
38. *sylvestre*, R. Br.
39. obtusum, Nutt.
40. palustre, D. C. Alexandria.
41. *Armoracia*, Fries.
Dentria.
42. diphylla, L.
43. laciniata, Muhl.
44. heterophylla, Nutt.
Cardamine.
45. rhomboidea, D. C.
46. hirsuta, L.
var. sylvatica, Gray.
Arabis.
47. Ludoviciana, Meyer. Ag grounds.
48. lyrata, L.
49. dentata Torr. & Gray.
50. lævigata, D. C.
51. Canadensis, L.
Barbarea.
52. vulgaris, R. Br.
53. *præcox*, R. Br.
Erysimum.
54. cheiranthoides, L. High Island.
Sisymbrium.
55. *officinale*, Scop.
56. *Thalianum*, Gaud.
Brassica.
57. *Sinapistrum*, Bois.
58. *nigra*, Gray.
Draba.
59. verna, L.
Camelina.
60. *sativa*, Crantz. Alexandria.
Lepidium.
61. Virginicum, L.
62. *campestre*, L.
Capsella.
63. *Bursa-pastoris*, Mœnch.
Thlaspi.
64. *arvense*, L. Georgetown.

VIOLACEÆ,

Solea.
65. concolor, Ging. High Island.
Viola.
66. primulæfolia, L.
67. cucullata, Ait.
var. palmata, Gray.
var. cordata, Gray.
68. sagittata, Ait.
69. pedata, L.
var. bicolor.
70. striata, Ait. High Island.
71. canina, L.
var. sylvestris, Regel.
72. pubescens, Ait.
var. eriocarpa, Nutt.
73. *tricolor*, L.
var. arvensis.

CISTACEÆ.

Helianthemum.
74. Canadense, Michx.
Lechea.
75. minor, Lam.

HYPERICACEÆ.

Ascyrum.
76. stans, Michx.
Hypericum.
77. prolificum, L.
78. *perforatum*, L.
79. ellipticum, Hook.
80. mutilum, L.
81. Canadense, L.
82. Sarothra, Michx.

CARYOPHYLLACEÆ.

Dianthus.
83. *Armeria*, L.
Saponaria.
84. *officinalis*, L.
Silene.
85. stellata, Ait.
86. nivea, D. C.
87. Pennsylvanica, Michx.
88. Antirrhina, L.
Lychnis.
89. *Githago*, L.
Arenaria.
90. serpyllifolia, L.
91. lateriflora, Fenzl.
Stetlaria.
92. *media*, Smith.
93. pubera, Michx.
94. longifolia, Muhl.
Cerastium.
95. *vulgatum*, L.

96. *viscosum*, L.
97. nutans, Raf.
98. oblongifolium, Torr.

Sagina.

99. subulata, Wimmer.
100. rubra, Presl.
var. campestris.

Anychia.

101. dichotoma, Michx.

Paronychia.

102. dichotoma, Nutt.

Scleranthus.

103. *annuus*, L.

Mollugo.

104. verticillata, L.

PORTULACEÆ.

Portulaca.

105. *oleracea*, L.

Claytonia.

106. Virginica, L.

MALVACEÆ.

Malva.

107. *rotundifolio*, L.

Sida.

108. *spinosa*, L.

Abutilon.

119. *Avicennæ*, Gærtn.

Hibiscus.

110. Moscheutos, L.
111. militaris, Cav.

TILIACEÆ.

Tilia.

112. Americana, L.

LINACEÆ.

Linum.

113. Virginianum, L.

GERANIACEÆ.

Geranium.

114. maculatum, L.
115. Carolinianum, L.
116. *columbinum*, L.
117. Robertianum, L.

Erodium.

118. *cicutarium*, L'Her.

Impatiens.

119. pallida, Nutt.
120. fulva, Nutt.

Oxalis.

121. Acetosella, L.
122. violacea, L.
123. stricta, L.

RUTACEÆ.

Zanthoxylum.

124. Americanum, Mill.

Ptelea.

125. trifoliata, L.

ANACARDIACEÆ.

Rhus.

126. typhina, L.
127. glabra, L.
128. copallina, L.
139. venenata, D. C.
130. Toxicodendron, L.

VITACEÆ.

Vitis.

131. Labrusca, L.
132. æstivalis, Michx.
133. cordifolia, Michx.

Ampelopsis.

134. quinquefolia, Michx.

RHAMNACEÆ.

Ceanothus.

135. Americanus, L.
136. ovalis, Bigelow. Chain Bridge.

CELASTRACEÆ.

Celastrus.

137. scandens, L.

Euonymus.

138. atropurpureus, Jacq.
139. Americanus, L.
var. obovatus, Torr. & Gray.

SAPINDACEÆ.

Staphylea.

140. trifolia, L.

Acer.

141. dasycarpum, Ehrhart.
142. rubrum, L.

Negundo.

143. aceroides, Mœnch.

POLYGALACEÆ.

Polygala.

144. incarnata, L.

145. sanguinea, L.
146. fastigiata, Nutt.
147. Nuttallii, Torr. & Gray.
148. cruciata, L.
159. verticillata, L.
150. ambigua, Nutt.
151. Senega, L. & var. latifolia.

LEGUMINOSÆ.

Lupinus.

152. perennis, L.

Crotalaria.

153. sagittallis, L.

Cytisus.

154. *scoparius*, Link.

Trifolium.

155. *arvense*, L.
156. *pratense*, L.
157. reflexum, L.
158. repens, L.
159. agrarium, L.
160. procumbens, L.

Melilotus.

161. *officinalis*, Willd.
162. *alba*, Lam.

Medicago.

163. *sativa*, L.
164. *lupulina*, L.

Robinia.

165. Pseudacacia, L.

Tephrosia.

166. Virginiana, Pers.

Astragalus.

167. Canadensis, L.

Desmodium.

168. nudiflorum, D. C.
169. acuminatum, D. C.
170. pauciflorum, D. C.
171. rotundifolium, D. C.
172. canescens, D. C.
173. lævigatum, D. C.
174. Dillenii, Darl.
175. paniculatum, D. C.
176. strictum, D. C.
177. rigidum, D. C.

Lespedeza.

178. procumbens, Michx.
179. repens, Torr. & Gray.
180. viotacea, Pers.
181. hirta, Ell.
182. capitata, Michx.

Stylosanthes.

183. elatior, Swartz.

Vicia.

184. *sativa*, L.
185. Caroliniana Walt.

Lathyrus.

186. palustris, L. and var. myrtifolius.

Phaseolus.

187. diversifolius, Pers.
188. helvolus, L.

Apios.

189. tuberosa, Mœnch.

Rhynchosia.

190. tomentosa, Torr. & Gray.
    var. erecta, Torr. & Gray.

Galactia.

191. glabella, Michx.
192. mollis, Michx.

Amphicarpæa.

193. monoica, Nutt.

Clitoria.

194. Mariana, L.

Baptisia.

195. tinctoria, R. Brown.
196. australis, R. Brown. Chain Bridge.

Cercis.

197. Canadensis, L.

Cassia.

198. Marilandica, L.
199. Chamæcrista, L.
200. nictitans, L.

Gleditschia.

201. triacanthos, L.

ROSACEÆ.

Prunus.

202. Americana, Marsh.
203. Pennsylvanica, L.
204. Virginiana, L.
205. serotina, Ehrhart.

Spiræa.

206. opulifolia, L.
207. salicifolia, L.
208. Aruncus, L.

Gillenia.

219. trifoliata, Mœnch.

Agrimonia.

210. Eupatoria, L.
211. parviflora, Ait.

Poterium.
212. Canadense.
Alchemilla.
213. *arvensis*, L.
Geum.
214. album, Gmelin.
215. strictum, Ait.
Potentilla.
216. Canadensis, L.
Fragaria.
217. Virginiana, Ehrh.
218. vesca, L.
Rubus.
229. strigosus, Michx.
220. occidentalis, L.
221. villosus, Ait.
222. Canadensis, L.
223. hispidus, L.
Rosa.
224. Carolina, L.
225. lucida, Mx.
226. rubiginosa, L.
227. *canina*, L.
Cratægus.
228. cordata, Ait.
239. coccinea, L.
230. tomentosa, L.
231. Crus-Galli, L.
232. parvifolia, Ait. High Island.
Pyrus.
233. coronaria, L. Bladensburg.
234. arbutifolia, L.
Amelanchier.
235. Canadensis, Torr. & Gray.
var. Botryapium.

SAXIFRAGACEÆ.

Ribes.
236. rubrum, L.
Itea.
237. Virginica, L. Hunting Creek.
Hydrangea.
238. arborescens, L.
Philadelphus.
249. inodorus, L.
Saxifraga.
240. Virginiensis, Michx.
Heuchera.
241. Americana, L.
Mitella.
242. diphylla, L.
Cheysosplenium.
243. Americanum, Schwein.

CRASSULACEÆ.

Sedum.
244. ternatum, Gray.
245. telephioides, Michx. Great Falls.
Penthorum.
246. sedoides, L.

HAMAMELACEÆ.

Hamamelis.
247. Virginica, L.
Liquidambar.
248. Styraciflua, L.

ONAGRACEÆ.

Epilobium.
259. coloratum, Muhl.
Œnothera.
250. biennis, L.
251. fruticosa, L.
Gaura.
252. biennis, L.
Jusslæa.
253. decurrens, D. C. Hunting Creek.
Ludwigia.
254. alternifolia, L.
255. palustris, Ell.
Circæa.
256. Lutetiana, L.

MELASTOMACEÆ.

Rhexia.
257. Virginica, L.

LYTHRACEÆ.

Ammania.
258. humilis, Michx.
Lythrum.
269. alatum, Pursh.
Nesæa.
260. verticillata, HBK.
Cuphæa.
261. viscosissima, Jacq.

CACTACEÆ.

Opuntia.
262. vulgaris, Mill.

PASSIFLORACEÆ.

Passiflora.
263. lutea, L.

Potomac-Side Naturalists' Club.

Feb. 7th, 1876, (200th meeting.)

A committee was appointed to prepare a report on the geology of the District.

Dr. Schaeffer read a paper, giving results of protracted microscopic investigation on different qualities of wool and woolen goods, and the modes of their adulteration, illustrating the same by specimens.

Mr. Sanborn spoke of a peculiarity in certain feathers, in which the fine down near the base, has a bearded structure, under the microscope, and being quite deciduous, breaks away from the shaft, and works into the twist of the ticking.

Mr. Ward read a paper on eccentricity of the pith in *Rhus toxicodendron.*

Feb. 21st, 1876, (201st meeting.)

Dr. Vasey read a paper (given in the last number,) on the Palms and Yuccas of the United States.

Mr. Smith stated that he had received *Sabal Adansonii* from Europe, under five different names.

Note on the Bank Swallow.—The depot of the White Water Valley Railway at this place is built upon stone piers, and spans the Hydraulic canal, being some five or six feet above the water. The past summer, I observed a Bank Swallow fly under the depot, with several spears of grass in her mouth; and being curious to see what she did with them, I watched, and found that she took them through a two inch auger hole which had been made in a pine board. I could not reach the place for the water, but I know from the droppings about the hole that she reared her young in that position.—R. Haymond, M. D., *Brookville, Ind,*

Early Flowering Plants.— In addition to the plants named in the last No. as blooming through the winter, we may add that *Hepatica* and *Poa annua* could be collected at any time in sheltered places; *Symplocarpus, Ranunculus repens* and *Botrychium lunarioides*, were in bloom during the holidays. A tree of *Acer dasycarpum* in the City flowered January 15th, and *Ulmus Americana* commenced in February.

March 6th a few *Sanguinarias* could be found expanded while *Obolaria Epigæa* and some violas were just bursting into bloom.

(Continued from 2d page of Cover.)

or the record of any particular locality, but that it shall be devoted to the *fields* and *forests* of our whole country. At the same time we shall aim to make it popular by giving fresh and interesting notes relative to fish culture and fishing, game and game-laws, economic entomology and botany and other subjects. To that end we invite brief contributions from all students of nature upon such topics, as well as upon those subjects more technical.

Though starting out modestly with but eight pages, we hope it will receive sufficiently substantial encouragement, by way of subscriptions, to enable us soon to add to the number of its pages, and thus enlarge its size and scope of usefulness.

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VOL. I. NO. 12.

MAY.

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

BULLETIN OF THE POTOMAC-SIDE NATURALISTS' CLUB.

CHARLES R. DODGE, EDITOR.

WASHINGTON:
THE COLUMBIA PRESS.
1876.

CONTENTS.

MAY, 1876.

COMPARATIVE SCARCITY OF INSECTS IN THE MOUNTAINS OF COLORADO *C. R. D.* 89
HOLLY AND MISTLETOE . . . . *Science Gossip.* 91
POTOMAC-SIDE NATURALISTS' CLUB—Record . . . . *Dr. J. W. Chickering.* 94
GLEANINGS IN FOREIGN FIELDS—The Colors of Spring Flowers 95
EDITORIAL PENCILINGS . . . . *Editor.* 96
Flora Columbiana.—Volume II.

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FIELD AND FOREST is a monthly publication devoted to General Natural History, and the sciences, and is the Bulletin of the Potomac-side Naturalists' Club of the District of Columbia.

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Contributions of notes are solicited on subjects pertaining to Natural History, and kindred topics, from all who are interested in the study of nature.

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PROSPECTUS

OF

Field and Forest---Volume II.

For some time past there has been a need for a medium through which students of Natural History and the kindred sciences could communicate with each other the results of CURRENT OBSERVATION in the field and laboratory, and, at the same time, place on record notes of any new facts of general interest to the scientific world that might come under their notice, as it is believed that many valuable facts bearing upon the Natural History of our land are lost to science, because not deemed of sufficient importance for publication in our larger magazines.

To meet this want, at the Nation's Capital, FIELD AND FOREST was projected, and in June 1875, the initial number was published. The limited number of its pages however, proved a serious drawback to full success, and so it has been thought advisable, with the opening of the second volume to double the number of its pages, and to enlarge its scope and FIELD of usefulness.

Still under the patronage of the Potomac-side Naturalists' Club—a natural history society founded twenty years ago—with a corps of Contributors composed mainly of gentlemen of recognized authority in the various branches of science, many of whom are eminent in their specialties, its tone and standing need not be questioned.

It is not intended, however, that it shall be exclusively the bulletin of any society, or the record of any particular locality, but that it shall be devoted to the *fields* and *forests* of our whole country. We shall aim to make it popular by giving fresh and interesting articles on various topics, notes relative to the birds, animals, fish, insects, plants, &c., of our American fauna and flora, as well as carefully selected extracts from the foreign scientific publications.

A monthly record of the proceedings of the Naturalists' Club will be given, and abstracts of papers read before the club will be published when upon subjects of special interest.

In short, our aim is that FIELD AND FOREST shall occupy a middle ground in scientific literature, by making it a journal of information for the student and observer, as well as a repository for notes and observations, that might otherwise remain hidden between the covers of an unpublished journal or note book. To that end we invite brief contributions from ALL students of nature upon topics of general scientific interest, as field notes, brief accounts of experiments or investigations, and information in regard to Societies, as well as communications upon subjects more technical.

We think the field is new, and can be made a useful one, and that our little journal—with the hearty co-operation of all who are interested in the objects for which it was established—may prove a complete success.

Field and Forest

DEVOTED TO

GENERAL NATURAL HISTORY.

Vol. 1.— MAY 1876.—No. 12.

Comparative Scarcity of Insects in the Mountains of Colorado.

In the summer of 1871 it was my good fortune to spend a number of weeks in the far west, and a greater portion of the time in the Rocky Mountains. Ample preparations had been made for general collecting, and with a genial brother-of-the-net for companion in entomological rambles—which often extended from dawn till dark—we confidently expected to do wonders, and bring home splendid collections in all orders.

The route followed carried us through Golden City and Idaho Springs to South Park, thence to Pike's Peak and the Garden of the Gods, where we emerged from the mountains and returned to Denver over the more level plateau of the "Divide," and from the time we passed the foot hills, near Golden City, and entered the first canyon in the mountains, we were struck with the comparative paucity of the insect fauna. On the table lands specimens of *Eleodes* and allied genera of *Tenebrionidæ* with other *Coleoptera*, were common enough. Grasshoppers were abundant, while specimens in various other orders buzzed or flitted around us in sufficient numbers to show decided presence, but in the mountains the marked *absence* of insect life in variety, except in favorable localities, was the rule and not the exception. Individual specimens, of course, occupied our attention as we journeyed along the everlasting hills, and now and then a group of butterflies, in some sunny nook, quickened our footsteps in their direction; or an overturned stone or fragment of bark would reveal frighted *Carabidæ* hastening to get out of sight, but after a few hours collecting it was not an easy matter to find anything strikingly different from the dozen or so species secured in the collecting box, or bottle of alcohol, and when it is considered that we took everything that came in our way, making comparison of the result with that of a similar collecting tour in most any portion of Eastern United States, the difference becomes very apparent.

This was especially marked in regard to the night-flying moths. In addition to our camp-fire, which burned all the evening, candles, protected by canned fruit boxes, served as attraction in various parts of the camp, where they were needed for light, and with the aid of a company of thirty persons, all more or less interested in the collectors, if not in the science of entomology, the entire mountain trip yielded so small a number of noctural *Lepidoptera* that they are hardly worth mentioning.

I have had little opportunity to compare notes with other entomologists on the subject, but the few with whom I have conversed agree with me perfectly, although I have heard that objection has been made to the statement.

Lieut. Carpenter's "Notes on the Alpine Insect Flora of the Rocky Mountains," in our last number, would seem to support this view, though he is only considering the insects of the higher elevations; but the same causes that prevent the possibility of finding more than five species of butterflies in a season's collecting, above timber line, would surely produce like results, though perhaps in a less marked degree, a few thousand feet below.

In studying the economy of nature we cannot help noticing that in tropical countries, where vegetation grows rank and luxuriant under a burning sun, insects are the most abundant, as they are needed to keep up the balance in nature. In the thrifty farming portions of our own country, we see the same law exemplified; with extended cultivation of certain plants which man has appropriated to his use, insects feeding upon these plants increase and multiply to such a degree that we call them noxious, and should we cease to cultivate these plants for a number of years, the insects would again decrease to numbers so small as to be comparatively unnoticed.

In conclusion is it not reasonable to suppose that in the barren wastes of the Rocky Mountains, where the temperature averages so much colder than the table lands, or in more easterly latitudes that insects of all kinds should be comparatively scarce. Will not some of our entomologists, who have had experience, give their views on the subject?

Charles R. Dodge.

Holly and Mistletoe.

Little thought of during the rest of the year, at Christmas time holly and mistletoe take a position of importance, denied to them all the other months. The holly, as might be expected of a plant of its sturdy nature, boldly asserts itself, and is, at the season mentioned, to be met with everywhere. In our churches it twines round the pillars, runs along the front of the galleries, and wreathes the pulpit; whilst on home and hospital walls, its shining leaves and bright berries gladden all, bringing to sick and well thoughts of past happy Christmases and hopes of future ones as blessed. Banished from churches, where only by mistake, we are told, did it ever have place, Mistletoe has in many houses even but an uncertain footing, for all do not look with favor on the privileges it brings in its wake. I propose to give a few facts concerning mistletoe and holly, taking the latter first. Holly *(Ilex aquifolium)* is an indigenous plant, growing also in warm and cold countries of Europe, Asia, and America. Although of slow growth, it attains, in a few instances, a great height, and forms, with care, after some years, handsome hedges. Evelyn had a fine holly hedge at Says Court, and I have seen one on the road from Birmingham to Acock's Green, about twelve feet high. Tynningham, near Dunbar, boasts the largest holly bush in Scotland, and at Frensham, in Surrey, some holly trees reached a height of sixty feet. The wood is close and white, and stains well, taking especially a beautiful black. It is used for Tunbridge ware and wood engravers' blocks; box and pear tree only exceeding it in value for the latter purpose. In very ancient times branches of it were fastened to houses to defend them from lightning, and as a protection from witchcraft. Later on the bark and leaves were used in fomentations, and the dried and not dried berries were reputed to possess very opposite qualities when swallowed. In my young days, when I suffered from chilblains, I was told that if I would only submit to have them whipped with freshly-gathered holly-leaves till the blood flowed, they would soon heal and never again appear. I had not the courage to try this remedy, but I believe it is still used in some country places. Bird-lime is now made from the bark.

Holly is evidently a corruption of holy,—a name given from its use in some of the early church festivals, when it was strewed instead of olive-branches. Its use at Christmas time can be traced to the Romans, who dedicated it to Saturn, and used it largely in the decorations for his festival, held at that time. The early Christians, therefore, whilst quietly celebrating the birth of our Lord, and keeping aloof from the riotous scenes around them, were wont to deck their walls with holly that they might avoid detection and punishment. Holly symbolizes resurrection. Great interest attaches to some holly-trees. In Argyleshire there is a prophecy that when a particular holly-tree near Inverary ceases to exist, and when certain other things shall happen (some of which have already come to pass), "then shall all the Argyle Campbells be destroyed, excepting so many as shall escape on a crooked and lame white horse;" and we learn from *Notes and Queries* that, in 1861, "the roots were exposed and loosened by the tide, and that the grandfather of the present Duke of Argyle insisted on an awkward bend being made in the line of public road to avoid the necessity of cutting it down." Near Dilston, in Northumberland, there is a thick holly-bush, consisting of several trees close together—the stems scored with initials and marks, and which is said to have served as a "post-office" for the passage of letters between the rebels and their friends in the troubled times of 1715 and 1745. A curious custom, called "holly bussing," was kept at Netherwitten on Easter Tuesday a few years ago, and may be now for all I know. The young people, headed by the parish clerk, playing the fiddle, betook themselves to a wood, where they gathered holly, with which they afterwards decorated a stone cross in the village, finishing the evening with dancing. Mistletoe *(Viscum album)* is a parasite growing on many trees; most frequently on the apple, and least often on the oak. So seldom, indeed, is it found on the latter tree that it has been doubted whether it ever attacks it; there are too many authentic instances, however, of its having been there seen for this doubt still to exist. Whilst it is found in France, Italy, Greece, and parts of Asia, it is said never to grow in Ireland nor in Devonshire.

Tradition says that this lovely English county, by some means, incurred the anger of the Druids, who cursed it, and forbade the mistletoe ever to grow there; and I have read, that in an orchard lying partly in Somersetshire and partly in Devonshire, mistletoe was to be found plentifully in the Somersetshire part of it, whilst all attempts failed to propogate it in the unlucky county. As to the etymology of the word mistletoe, wise men disagree. Prior says it is derived from *mistiltan*, A. S.: thus—*mistl*, different; and *tan*, twig; referring to the difference existing between it and the plant on which it is a parasite. Others assign the name to the manner in which it was supposed to be propogated by means of birds. Thrushes, blackbirds, and ringdoves are said to feed largely on the berries. All know how sacred the mistletoe was to the ancient Britons, and with what solemn ceremonies their priests gathered it, cutting it down with golden sickles, used only for that purpose, and never allowing it to fall to the ground. It was said by the Druids to be the winter home of the fairies, who found, under its leaves, the shelter they lost when other plants became bare. The priests distributed pieces of it to the people, as charms against witchcraft and many diseases. Great calamities were portended when no mistletoe was to be found on the oak; and it is probable that the reason why the Druids planted apple-trees near their oak groves was that they might remedy the defaults of nature when it so suited their policy. Shakespeare's mention of it as the "baleful mistletoe" is thought by some to refer to the horrid rites practised by the Druids when they gathered it; others interpret it to allude to the injurious effect it was supposed to have on the trees to which it fixed itself, or to the belief that the berries were poisonous. When and where the origin of kissing under it arose is unknown, but it has been dated back to the ancient times when it was sacred to Friga, the Saxon goddess of love. At one time a youth could claim a kiss for each berry he plucked from the bush under which he stood with a maiden. Nares says the maid who was not kissed under the mistletoe at Christmas, would not be married that year. Misletoe was used in medicine for apoplexy, palsy, and other diseases; and that which grew on the oak was supposed to possess the greatest medicinal virtues, though Culpeper, a quaint old herbalist, says he knows not why, "unless because it is rarest and hardest to come by,"—an all sufficient reason to Culpeper, to account for the celebrity attained by many remedies. The bark is astringent, but is not now used in medicine. Bird-lime is made from the viscid pulp of the fruit.—R. M. in *Science Gossip.*

Potomac-Side Naturalists' Club.

March 6th, 1876, (202d meeting.)

Members were called upon for reports of observations since last meeting.

Claytonia Virginica, *Hepatica triloba*, *Acer dasycarpum*, *Draba verna*, and several other plants were noticed in bloom last month. Mr. Sanborn had noticed several moths.

Stormy weather interrupted the next two meetings.

April 24th, (203d meeting.)

Prof. Chickering exhibited specimens of *Pinus pungens*, and *Draba ramosissima*, from Harper's Ferry.

Mr. Ward exhibited, from the islands above High Island, *Delphinium tricorne* and other plants.

Mr. Sanborn read a paper upon Cocoons and their builders, illustrated by numerous specimens.

Lieut. Carpenter read a paper upon the Alpine Insect Fauna of the Rocky Mountains. Both these papers will be found on other pages.

May 8th, 1866, (204 meeting.)

Prof. Thompson, of Powell's Survey, was elected a member.

Prof. Doolittle exhibited specimens of *Lygodium palmatum*, from near Sligo.

Dr. Schaeffer called attention to the fact that the first warm day of the season, for two or three years past falling on May 9th or 10th, came this year on the 6th.

Mr. Ward then exhibited specimens, and gave an informal talk upon several of the rare plants of the District.

May 22nd, (205th meeting.)

James Greenwood, Jr., was elected a member.

Dr. Schaeffer read a paper upon the form and size of hailstones in the storm of to-day.

Gleanings in Foreign Fields.

The Colors of Spring Flowers.—Some interesting observations on the flowering of spring plants have just been made at the meeting of the Edinburgh Botanical Society by the Vice-president, Mr. Buchan, who, with a view of discovering what may be learned from the budding, leafing, and flowering of plants and trees, has collected the following information on the subject: It appears from the result of noting the average dates of flowering of 32 species at the Royal Botanical Gardens during 26 years, that the six latest springs were—1855, when the flowering was 30 days later than the average; 1870, when flowering was 16 days; 1853, 14 days; 1856, 13 days; 1857 and 1865, each 12 days later. The five earliest springs were 1874, when flowering was 23 days earlier than the average date; 1869, when it was 19 days; 1851, 13 days; and 1858 and 1866, each 11 days earlier. The two extremes show a difference between the dates of flowering in different years of fifty-three days. The longest deviations from the average were before the equinox. As to the relations which these effects have to temperature, it was found that the mean temperature of Edinburgh fell to its lowest on the 11th of January, when it was 34.8°, and from this point it may be assumed that meteorological conditions commence which result in giving vegetation a start. Another question of great interest is the relation of the color of flowers to their date of flowering. Taking 909 species of British flora, 257 were found to have white flowers, 238 yellow, 144 red, 94 purple, 87 blue, the remainder being green and other colors. Of the blue flowers, 16 per cent. bloomed in April; 14 per cent. of the white flowers bloomed in that month, but only 9 per cent. of the reds, the yellows being very close to the latter. It thus appeared that the blues were far ahead of the reds and yellows, the whites being intermediate, and the purples and greens came in between the blues and the reds. This indicates the existence of some general law which arranges the flowering of plants in the British flora according to the colors in the spectrum.

EDITORIAL PENCILINGS.

Flora Columbiana.—With regard to the catalogue of the plants of the District, commenced in our last number, the following statements may not be out of place:

In 1830 was printed in Washington *Flora Columbinæ Prodromus*, a catalogue of all the plants hitherto collected in the District.

It was compiled by John A. Brereton, M. D., U. S. A., and was a record of the diligent and successful explorations of the "Botanic Club," consisting of Wm. Mechlin, Wm. Rich, Alex. McWilliams, M. D., Jas. W. Robbins, M. D., and the compiler, during the five years preceeding. That catalogue is now out of print.

It was, therefore, two years ago, voted by the "Potomac-Side Naturalists' Club," the lineal descendent of the older organization, that Dr. Geo. Vasey, Prof. J. W. Chickering, Dr. E. Foreman, Prof. Wm. H. Seaman, and Mr. L. F. Ward be appointed a committee to prepare a new catalogue of the Flora of the District.

This present catalogue is the record of the botanical explorations of the club, during the past three or four years.

Doubtless many additions will be made in the future, but it has been judged best, as a means of giving definiteness to further exploration, as of facilitating exchanges, to issue this catalogue at this time.

Volume II.—With the present number we close the first volume of our little journal, and whether it has been successful or not, we must leave our friends to decide.

As to the future, convinced that the limited number of its pages in its present form are insufficient, and have proved a drawback to success, with the next number we shall enlarge to sixteen pages, hoping to give a greater variety of reading matter, and thus make the journal more interesting and useful.

The first number of the second volume will be issued for July, so as to start with the middle of the year. The price will remain the same, and we trust all our friends will favor us with early subscriptions, that their names may be continued on the list without change.

The July number will be mailed to all subscribers now on the list, whether subscriptions are renewed or not, as a specimen number, and we would be pleased to receive some new names with the old.

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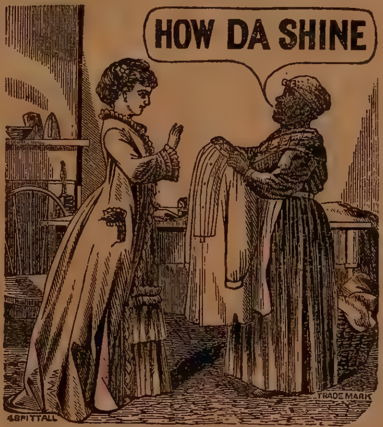

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